# 21HT3202

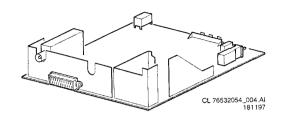
MODEL

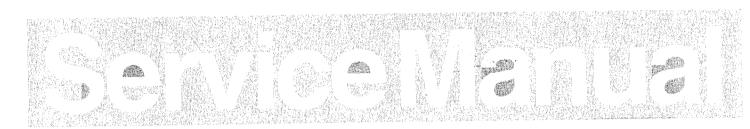
SERVICE MANUAL





# A7H.1





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GB 4822 727 21556



# Chassis A7H.1

# **Technical specifications**

Indications

VCR programs

UV916E / IEC (PLL)

U944 / IEC (PLL)

Tuning and operating system

: On Screen Display (OSD)

: 1 LED ( O red for stand-

by, ① green for TV-on, blinking red for "RC5" and

> 48 - 118 MHz 118 - 300 MHz

300 - 470 MHz

470 - 861 MHz

470 - 861 MHz

green/red

error code)

: - PLL

: VHFa:

: VHFb:

: Hyper:

: UHF:

: UHF:

: 0

: 220 - 240 V ± 10% AC; 50 Mains voltage

 $Hz \pm 5\%$ 

: 14" 43 W (stand-by ≤ 6 W) Power cons. at 220V~

: 17" 45 W (stand-by ≤ 6 W) : 21" 63 W (stand-by ≤ 6 W)

Aerial input impedance TV : 75Ω - coax Min. aerial input VHF : 30µV

Min. aerial input UHF : 40µV Max. aerial input VHF/UHF : 180mV

Pull-in range colour sync : ± 300Hz : ± 600Hz Pull-in range horizontal sync

Pull-in range vertical sync : ± 5Hz

Picture tube range : 14",17", 21"

: 1 W mono execution: 4" full range round  $25\Omega$  2W

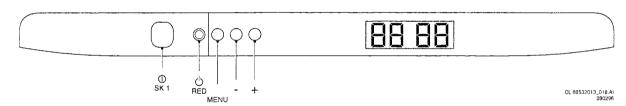
: 3 W mono execution: 4" woofer round 16 $\Omega$  3W 1" tweeter round  $16\Omega$  3W

TV Systems

: PAL I : PAL BG

: PAL BG / SECAM BGDK : PAL BG / SECAM BGLL'

# Local operating functions



### **Connection facilities** 2.

### **Euroconnector:**

Audio  $\bigcirc$  R (0V5 RMS  $\leq$  1k $\Omega$ ) Audio  $\Theta$  R (0V2 - 2V RMS  $\geq$  10k $\Omega$ )

Audio  $\bigcirc$  L (0V5 RMS  $\leq$  1k $\Omega$ )

Audio Blue

Audio  $\Theta$  L (0V2 - 2V RMS  $\geq$  10kW)

Blue (0V7pp/75W)

CVBS-status 1 ⊕ (0-2V int., 10-12V ext.)

Green ⊥

SDA to smart-loader

Green (0V7<sub>pp</sub>/75 $\Omega$ ) 11 -

12 -SCL to smart-loader

Red

### +5SI to smart-loader 15 -Red $(0V7_{pp}/75\Omega)$

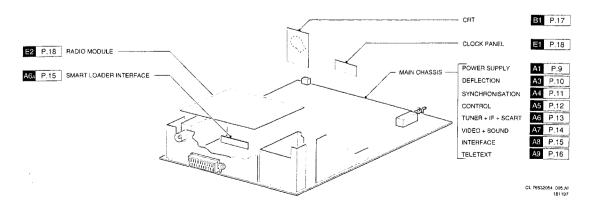
RGB-status (0-0V4 int.)(1-3V ext. 75 $\Omega$ ) 16 ~

17 -CVBS 1 18 -CVBS \_\_

CVBS  $\bigcirc$  (1V<sub>pp</sub>/75 $\Omega$ ) 19 -CVBS  $\Theta$  (1V<sub>pp</sub>/75 $\Omega$ )

21 - Earthscreen

# Location of panels



# 3. Safety instructions, Maintenance instructions,

# Chassis A7H.1 3

# Safety instructions for repairs

Safety regulations require that during a repair:

**Warnings and Notes** 

- The set should be connected to the mains via an isolating transformer:
- Safety components, indicated by the symbol ", should be replaced by components identical to the original ones;
- When replacing the CRT, safety goggles must be worn.
- Safety regulations require that after a repair the set must be returned in its original condition. In particular attention should be paid to the following points:
  - As a strict precaution, we advise you to resolder the solder joints through which the horizontal deflection current is flowing, in particular:
  - all pins of the line output transformer (LOT);
  - fly-back capacitor(s);
  - S-correction capacitor(s);
  - line output transistor;
  - pins of the connector with wires to the deflection coil;
  - other components through which the deflection current flows.

This resoldering is advised to prevent bad connections due to metal fatigue in solder joints and is therefore only necessary for television sets older than 2 years.

- The wire trees and EHT cable should be routed correctly and fixed with the mounted cable clamps.
- The insulation of the mains lead should be checked for external damage.
- The mains lead strain relief should be checked for its function in order to avoid touching the CRT, hot components or heat sinks.
- The electrical DC resistance between the mains plug and the secondary side should be checked (only for sets which have a mains isolated power supply). This check can be done as follows:
- · unplug the mains cord and connect a wire between the two pins of the mains plug;
- · set the mains switch to the on position (keep the mains cord unplugged!);
- measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 M $\Omega$  and 12 M $\Omega$ ;
- · switch off the TV and remove the wire between the two pins of the mains plug.
- The cabinet should be checked for defects to avoid touching of any inner parts by the customer.

# **Maintenance instructions**

It is recommended to have a maintenance inspection carried out by a qualified service employee. The interval depends on the usage conditions:

- When the set is used under normal circumstances, for example in a living room, the recommended interval is 3
- · When the set is used in circumstances with higher dust, grease or moisture levels, for example in a kitchen, the recommended interval is 1 year.

The maintenance inspection contains the following actions:

- Execute the above mentioned 'general repair instruction'. Clean the power supply and deflection circuitry on the
- Clean the picture tube panel and the neck of the picture

### Warnings

In order to prevent damage to iCs and transistors, all highvoltage flashovers must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 3.1 should be used to discharge the picture tube. Use a highvoltage probe and a multimeter (position DC-V). Discharge until the meter reading is 0V (after approx. 30s).

# ESD 🚣

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.

### Available ESD protection equipment:

anti-static table mat: 4822 466 10953 large 1200x650x1.25mm anti-static table mat: small 600x650x1.25mm 4822 466 10958 4822 395 10223 anti-static wristband connection box (3 press stud connections, 1 MΩ) 4822 320 11307 extension cable (2 m, 2 MΩ; to connect wristband to connection box) 4822 320 11305 connecting cable (3 m, 2 MΩ; to connect table mat to connection box) 4822 320 11306 earth cable (1 M $\Omega$ ; to connect any 4822 320 11308 product to mat or connection box) complete kit ESD3 (combining all 6 prior products: small table mat) 4822 310 10671 4822 344 13999 wristband tester

- Together with the deflection unit and any multipole unit, the flat square picture tubes used from an integrated unit. The deflection and the multipole units are set optimally at the factory. Adjustment of this unit during repair is therefore not recommended.
- Be careful during measurements in the high-voltage section and on the picture tube.
- Never replace modules or other components while the unit is switched on.
- When making settings, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

### Notes

- The direct voltages and oscillograms should be measured with regard to the tuner earth  $(\bot)$ , or hot earth  $(\bot \cancel{L})$  as this
- The direct voltages and oscillograms shown in the diagrams are indicative and should be measured in the Service Default Mode (see chapter 6) with a colour bar signal and stereo sound (L:3 kHz, R:1 kHz unless stated otherwise) and picture carrier at 475.25 MHz.
- Where necessary, the oscillograms and direct voltages are measured with (T) and without aerial signal (X). Voltages in the power supply section are measured both for normal operation (①) and in standby (①). These values are indicated by means of the appropriate symbols.
- The picture tube PWB has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.
- The semiconductors indicated in the circuit diagram and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories Licensing Corporation. DOLBY, the double D symbol II and PRO LOGIC are

trademarks of Dolby Laboratories Licensing Corporation.

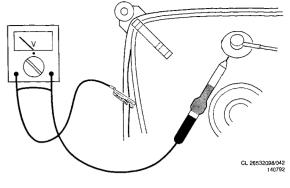


Fig. 3.1

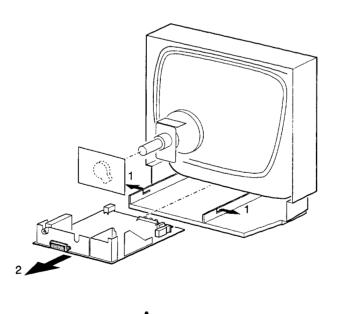
# 4. Mechanical instructions

For the main carrier two service positions are possible

- A: For faultfinding on the component side of the main
- B: For (de)soldering activities on the copper side of the

Position A can be reached by first removing the mains cord from it's fixation, then loosen the carrier lips (1) and then pulling the carrier panel (2) for approximately 10 cm.

Position B can be reached from position A after disconnecting the degaussing cable.



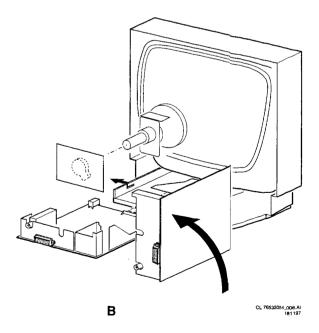
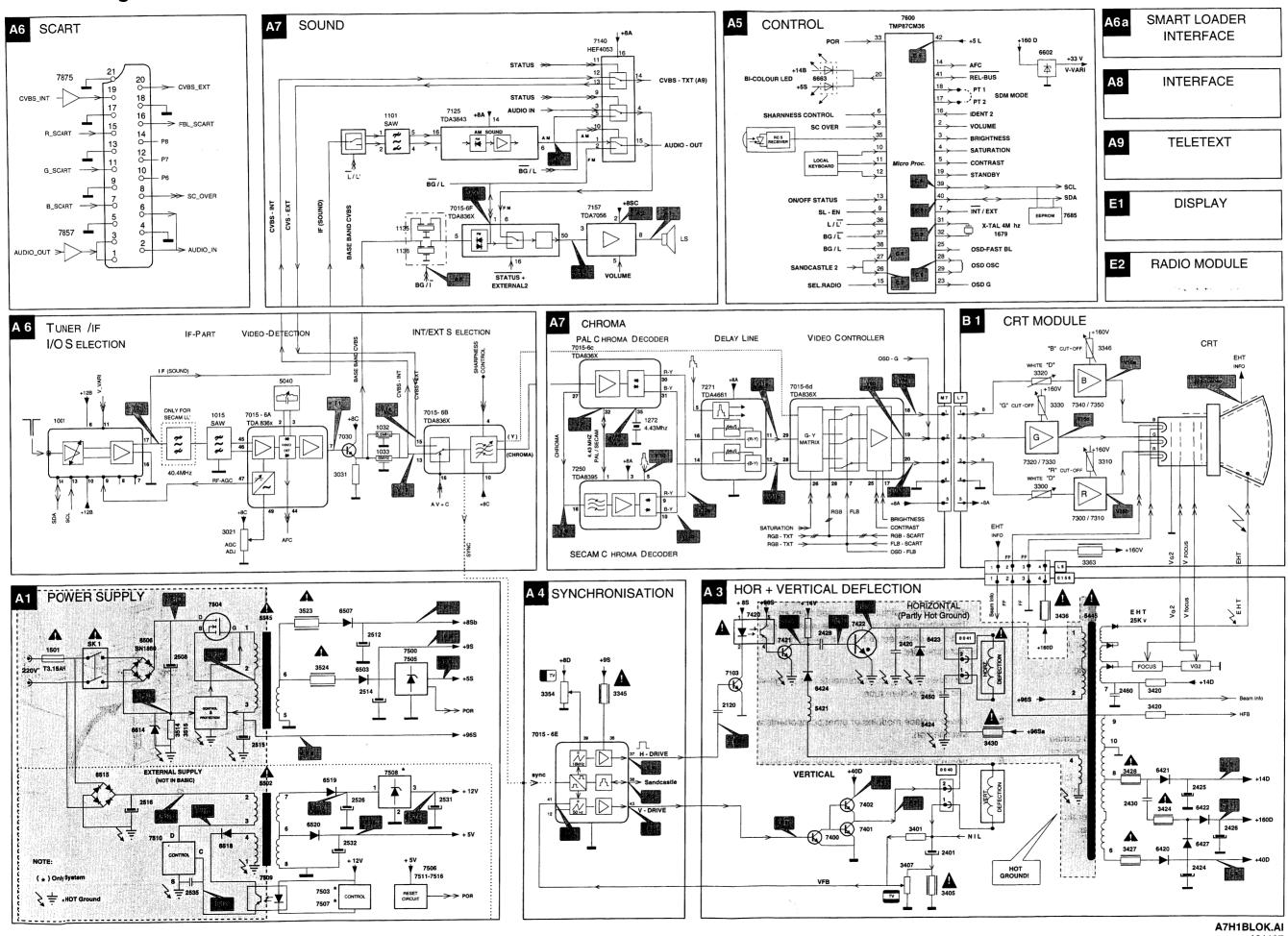


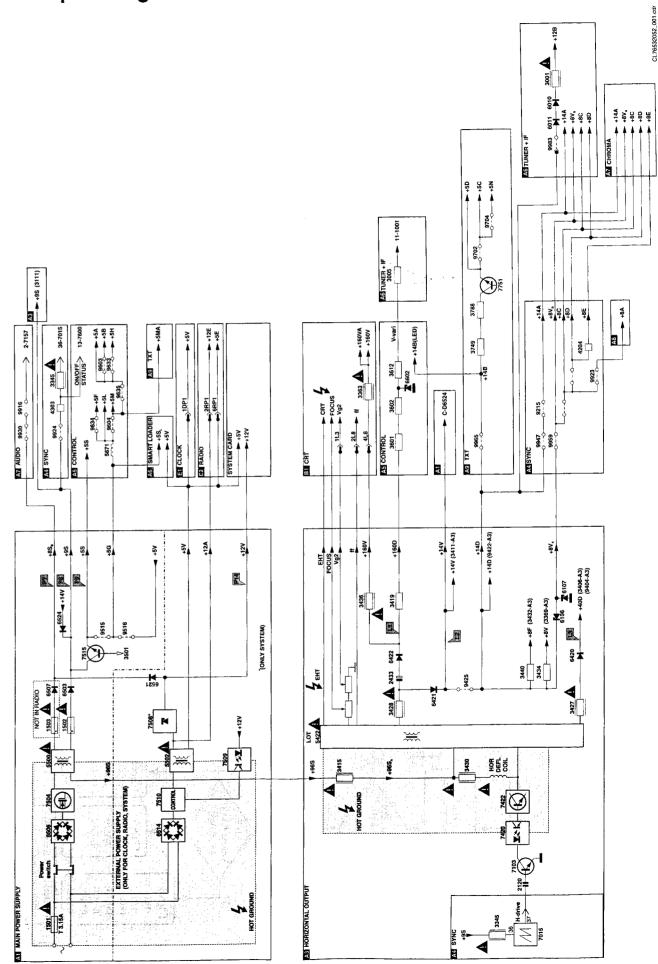
Fig. 4.1

# 5. Block diagram / Blockschaltbild / Schéma-bloc Chassis A7H.1 4 Block diagram / Blockschaltbild / Schéma-bloc

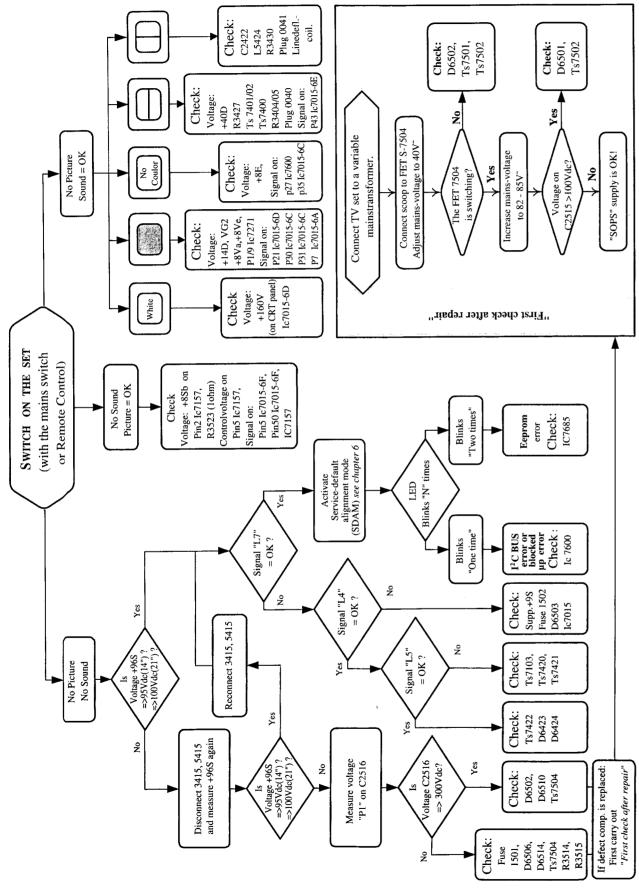


# Chassis A7H.1 5 Survey of testpoints / Ubersicht über die P11 (D-7510) **MAIN CHASSIS (Component side)** 10µs / div L7 7422 1V / div DC 20µs / div 100mV / div DC V15b (3L7) L9 (37-7015) 0.5V / div DC 20µs / div 1V / div DC P1 284V / DC P1 292V 0 DC P6 95V7 / DC P6 98V8 0 DC P7 11V DC **CRT PANEL (Track side)** 1V / div DC 20µs / div 1V / div DC V16a (11L6) F4 (41-7015) 3300 3320 3330 3346 3310 0.5V / div DC 200mV / div DC 1V / div DC CL 76532054\_003.AI 181097 C1 5V DC V11a P5 (E-7501) C4 5V DC C5 5V DC 1V / div DC 0.5ms / div 1V / div DC 20µs / div 100mV / div DC 20V / div DC 20µs / div 12 Vpp 1.2V P9 5V DC L1 140V DC P10 292V DC ---**>** = 0V A5 BG LL' = 0V7 L2 12V8 DC P12 5V7 DC L3 38V6 DC P13 16V9 DC P14 12V DC P15 5V DC 10V / div DC

# Diagram supply voltages survey / Blockschaltbild Speisespannungen / Schéma-bloc tension d'alimentation



# 6. Fault finding tree & Repair facilities / Aide au depannage & Conseils pour la réparations



# Repair facilities

# **Functional blocks**

On both the service printing on the copper and the component side, functional blocks are indicated by lines and text.

## **Test points**

The AA5H chassis is equipped with test points in the service printing on both sides of mono-board. These test points are referring to the functional blocks as mentioned above:

\* P1-P2-P3, etc: Test points for the power supply Test points for the line drive and line \* L1-L2-L3, etc: output circuitry

Test points for the frame drive and \* F1-F2-F3, etc:

frame output circuitry Test points for the synchronisation \* S1-S2-S3, etc:

circuitry

Test points for the video processing \* V1-V2-V3, etc: circuitry

\* A1-A2-A3, etc: Test points for the audio processing circuitry

\* C1-C2-C3, etc: Test points for the control circuitry \* T1-T2-T3, etc: Test points for the teletext processing

The numbering is done in a for diagnostics logical sequence; always start diagnosing within a functional block, in the sequence of the relevant test points, for that functional block.

# Service default-alignment mode (SDAM)

The service default-alignment mode is a pre-defined mode which can be used for faultfinding (especially when the TV gives no picture at all). All oscillograms and DC voltages in this service manual are measured in the service default-alignment mode. Alignment (if present) are also done in this mode.

Activate the service default-alignment mode can be done in 2

- 1. By short-circuiting the service pins PT1 and PT2 of the microcomputer (pin 14 of IC7600) while pressing the mains-switch.
- 2. From normal operation mode by pressing the button "DEFAULT" or "ALIGN" on the DST (Dealer Service Tool)

Leaving the service default-alignment mode to normal operation can only be done by the stand-by on the remote control or by pressing diagnose 99 followed by the OK-button on the DST (so not via mains switch "off"; after mains switch "off" and then "on" again the set will start up in the service default-alignment mode again to enable easy faultfinding).

"S" for service menu active -> Option code + Counter + Software version → Error code history  $\rightarrow$ 

Functions of the service default-alignment mode:

- 1. All analogue settings (volume, contrast, brightness and saturation) are in the mid position.
- 2. Set is tuned to 475.25 Mhz.
- 3. Delta volume settings are not used (delta volume setting = a delta on the volume setting).
- 4. OSD error message (present available error code) is displayed continuously.
- 5. The +key and the -key of TV will act as search and auto store on the maximum program number.
- 6. Automatic switch off function (set switches "off" after 15 minutes no IDENT) will be switched off.
- 7. Hotel mode will be disabled.
- 8. All other functions remain normal controllable.
- 9. Software version of the microprocessor used in that typical set is displayed in the right top corner
- 10 A counter in the middle of the screen indicate the normal operation hours of the set in a hexadecimal code (every time the set is switched "on" the counter is incremented by 1 hour, so +1 at the counter).
- 11. The "S" in the middle of the screen above the counter indicate that the set is in the service default-alignment
- 12. Option code

This code indicates the Options setting of the set.

# 13. Error code history:

The 5 last different error codes occurred are stored in the EEPROM memory; last error code detected will be displayed on the left side (see for an overview of all possible error codes Fig. 6.3), so e.g.:

00000	means no error codes present in the
	buffer.
30000	means one error code present in the
	buffer; error code 3.
23000	means two error codes present in the
	buffer; last detected error code is
	error code 2, previous detected error
	code is error code 3

The error code history buffer is cleared when the Service Menu is left by the stand-by command or by diagnose 99 command. In case the Service Menu is left by the mains switch "off" the error code history buffer will not be cleared. With commands diagnose 1..5 on the DST it is possible to read out the error-buffer. This can be done on the following

- press the diagnose button on the DST.
- press the number of the error position you want to read.
- press the OK-button on the DST.

Diagnose 1 is the most actual error. So the left position of the error-buffer. Diagnose 5 displays the most right position of the error-buffer. If there is an error on the selected position the led will blink twice the error code. The error code on the DST has to be ignored. Diagnose 1..5 is an powerfull tool to read out the error-buffer when there is no picture.

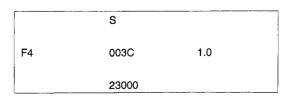


Fig. 6.1

# **Repair facilities**

# 4. Option setting

All option setting are done in the normal menus. These menus can be selected by selecting the maximum TV-channel followed by pushing the volume/program selection button and at the same time pressing the volume-minus button for more then four seconds. With cursor up/down one of the items can be selected. With cursor right/left the items can be changed. New option settings are activated immediately. The following options can be choosen:

System	SINGLE	For a BG,DK or BG/DK set.
•	MULTI F	For a BG+L+I set.
	UHF	For a I, UHF only set.
Teletext	YES/NO	Teletext can be selected yes or no.
Clock	YES/NO	Clock can be selected yes or no.
Radio	INT	To select internal radio tuner.
	EXT	This means that the radio is external.
		In this way TV-presets could be used
		as radio. The installation of these kind
		of programs is the same as for TV
		programmes. Radio channels can be
		modulated by the system installer on
		TV frequencies.

No radio available.

# 5. Option code

NO

The option code is built up with 8 bits. The following table explains wich option influences which bit.

BIT	Description	
0 (LSB)	Not used	
1	Interface system	0=non system
		1=system
2	Radio internal	1=radio present
3	Not used	
4	Clock	1=clock present
5	Teletext	1=txt present
6	Tv-system	
7 (MSB)	Tv-system	

Fig. 6.2

# Tv-system (bit 7 and bit 6)

00 = single PAL

01 = PALI

10 = not used 11 = MULTI-F Example: option code F4 (hexadecimal presented) means a full multi set non system with teletext, clock and internal radio. F4 is in binair 1111 0100.

Chassis A7H.1

# 6. Error messages

The microcomputer also detects errors in circuits connected to the  $I^2C$  (Inter IC) bus. These error messages are communicated via OSD (On Screen Display) and a flashing LED in the service default-alignment mode. (error code history buffer):

- 1. In normal operation:
  - In normal operation no errors are indicated.
- In the service default-alignment mode;
   In the service default-alignment mode both the "OSD error code" and the "LED error" indication will display the present detected error twice.

# 7. Hotel mode

# 7.1 Hotel-mode "on"

To enter to hotel mode a setting must be changed in the installation menu.

# 7.2 Fuction of the hotel mode

- Volume cannot be increased above the maximum level installed.
- Store open/close is ignored, message "LOCKED" is shown.
- Local keys are blocked. If the blocking option is set, a message "LOCKED" is shown when a local key is pressed.
- All protected programs cannot be selected. To free protected programmes the remote control key "PIP on/off" must be pressed or the relevant menu item must be changed. This key works as a toggle function.

# 7.3 Hotel-mode "off"

To leave to hotel mode a setting must be changed in the installation menu. Same setting as in the Hotel-mode "on".

"OSD error number" (Service Menu)	"LED behaviour"	Error description	Possible defective component
0	No led blinking	No error	
1	LED blinks once	General I <sup>2</sup> C bus	
2	LED blinks twice times	Eeprom error	IC7685
3	LED blinks three times	TXT-error	IC7700 / 7990 / wrong option
4	LED blinks four times	PLL-tuner error	Item 1001 / wrong option
5	LED blinks five times	Radio-module error	IC7904 / item 1910 / wrong option
6	LED blinks six times	Display error	IC7951

Fig. 6.3

# Mapping main chassis

	.l. l.		,																
0022	В	2263	D1 *	2615	B2 *	3121	C3 *	3436		3672		4003		6420		7665		9616 B2	
0025	A4		D1 *		B2 *		E1		D4	3673 3674		4006 4008	D2 *	-	E4 F4	7670 7672	C2 *	9619 B	
	E4		C1 *	2623 2624	B1 C2	3125 3126		3440 3500	F3 D4 *	3675		4035			E5		C3 *	9620 B	
0041 0043			C1 C1 *		B2 *	3127		3501	D4 *		C3	4102		6424	D5		B2	9621 B	
0050			C1 *	2626	B2 *		E3	3502	D4	3677	C2 *	4103		-	D4		A3	9622 A	
0051	B5		C1 *	2629	C2	3141		3503	C4		C2 *	4110 4111		-	E4 D4	7702 7711		9623 B	
0110			C1 *		C3	3142 3143	E3 *	3504 3505	C5 D4	3679 3680	C2 *	4111			C4	7713		9625 A	
0120 0156			D1 *	2631 2632	C2 *	3143		3506	D4 D4	3681	B2 *	4116		-	D5	7715	B3 *	9626 C	3
1001			D1 *	2633		3145		3507	C4	3682	B2 *	4118			D4	7731		9627 A	
1015			D2 *	2651		3146		3508	C5	3683		4119			D5	7732		9628 C 9630 C	
1032			D2 *		C2 *	3147		3509	C4	3684		4150 4201		-	D4 C5	7740 7745	A3 *	9630 C 9631 C	
1033			D2 *	2660	A1 *	3148		3510 3511	C4 D5	3685 3691	C1	4201			C4		A1	9632 B	
	E1 D2		C2 *	2662 2663	C2 *	3149 3150	D1	3512		3694	C2 *	4203			B4	7856	F2 *	9633 C	1
	D2 D2	2290	C2 *		A4	3151	B1 *	3513			A3 *	4204	D1 *		D4 *		E2 *	9634 C	
	D1	2292		2667	C2 *	3152	F1 *	3514	C5		A3 *	4208			D5	7858		9635 B 9636 B	
1501	A5	2293	D3 *	2668	A4	3153		3515		3697		4209 4217			A3 C4	7875 7876		9636 B 9653 B	
1502			C2'*	2669	C2 *	3154 3155		3516 3517	B5 D4 *	3698 3702	A3 *	4302			B5		F2	9680 B	
	D4 C2	2295 2297	E3 D1	2670 2676	C2 *	3156		3518		3704		4303			C5		F1	9685 A	.1
1685	A1	2298		2677	C2 *	3157		3519		3705	A3 *	4408	C2 *	6517			E1	9701 B	
1701	A2	2340		2678	C2 *	3158	F1	3520		3706	B2 *	4601		6518		+	D1	9702 A 9704 B	
2001	F2	2345		2679	C2 *	3159		3521		3707		4602 4603		6519 6520			D1 C1	9704 B 9705 B	
	F1 *	2350		2680	C2 *	3163 3164		3522 3523	A4 D4	3709 3713		4616			C3	9007		9707 F	
2007 2008		2351 2354	D1 *	2681 2682	C2 * B2 *	3165		3524		3714		4617			B4		F2	9708 E	2
2010		2355		2685	A1	3169		3525	C3	3716		4618	C2 *	6523	D4	9009.		9709 C	
2011			D2 *	2686	B2 *	3170	D3	3526		3718		4622		6524		9011		9710 C	
2012		2370		2689	C2 *	3171	D3 *	3527		3719	E2 *	4623	C2 * A2 *	6540 6602			F2 F3		32 32
2013		2371		2701	A3 *	3172		3528 3529		3720 3722	E2 B2 *	4653		6650		9101		9713 C	
2014		2400 2401		2702 2703	A3 *	3173 3198	E1	3530		3723	B3 *	4711			C2 *	9104		9714 D	)3
2015 2016	D2 *	2402		2704			D1 *	3531	B4	3724		4713	B2 *	6658	D2	9107	A1	9715 D	
2017			E4 *	2705		3245	A2 *	3532	A4	3728	B3 *	4715		6704			E2	9716 B	
2018	D1 *	2405	E3 *	2706	A2	3246		3533		3729	A2 *	4720		6705			E2 F1	9745 A 9750 A	42 43
2022			E4 *	2707		3248		3534		3731 3732	A2 * A2 *		B3 * A2 *	6751 6849		9116	E3		32
2023		2415		2711 2712		3259 3284		3535 3536		3733	A2 *		B2 *	6850		9117		9772 B	
2025 2029	E1 *		E5 D5	2713		3285	D2		A4 *	3734	A2 *		B1 *	6851		9120	C3		3
	D2 *	2422		2715		3286	D2	3538	A4 *	3735	A2 *	4771		6852			C1		32
2031	E1	2423	E5		A2 *	3291		3539		3736		4773		6853 6854		9151 9212	C1 D1		)3 )3
	E1 *	2424		2726			D1 *	3540		3737 3738	A2 *		B2 *	6855			C2	9911 A	
	E1 *	2425 2426	E4 F4	2727 2732		3293 3294		3542 3543		3739	A3 *		F3 *	6865		9215	C3		02
	D1 *	2420		2734		3295		3544		3740			F2 *	7001	E2	9218	D2		)3
2041	D2 *		D5	2736		3296		3545	A4 *	3741		5010		7015		9245	B3	9916 E	
2043		2429	D4	2752		3297	D2 *	3546		3742		5012		7030 7103		9401 9403	F4 F4		≣3 ≣3
	E2 *		F4	2771	A2 *	3298 3299	D2 * D3 *	3547 3601	A4 * C3	3743 3744		5032 5040		7125		9404	E4		23
2045 2050	D2 *	2431 2432		2772 2848		3332		3602		3745		5043		7126		9420	D5	9923	<b>D1</b>
2050	D2 *	2500		2849		3340	E2 *		B1 *	3746		5130	D2	7127		9421	D5		23
2080	D2 *	2501	D5	2850	F3 *	3341	D3 *	3605		3749		5195		7140		9422	E3		21
2082	E2	2502	C5	2852		3342		3607		3751	A1 *	5196		7141 7142		9424 9425	E4 F4		01 ≣3
2084		2503	D4	2860		3345 3349	C1	3608	B1 * B1 *	3752 3760		5415 5421		7143		9440	F3		=3
2101 2104		2504 2505	D5 C4	2863 2877	F2 *		D1 *		B1 *	3761		5422		7150		9441	E3	9930 E	Ξ3
2109		2506		3001			D1 *		B1 *		B2 *	5424		7155		9500		9932 A	
2112		2507		3005		3353		3616		3763		5500		7156		9501 9502	D5	9934 C	
2113		2508			E1 *	3354			B2 * C2 *	3764 3765		5502 5503		7157 <b>7</b> 170		9503		9937 F	
2117		2509 2510			E2 * E1 *	3368 3369		3619		3768		5504		7243		9504		9938 F	
2120 2122		2511			D2 *	3370		3620		3769		5505		7250	C1	9505	D3	9939 F	
2123		2512			E2 *		E3 *		C1 *	3770		5506		7271		9506		9940 E	
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2125		2514			D2 *	3402 3403		_	B1 *	3785	B2 *	5601 5671		7401		9510		9943 E	
2126 2127		2515 2516			F1 * E2 *	3404			B1 *	3788		5677		7408		9511	C4	9944 E	32
2128		2517		3020		3405			B1 *	3850		5701	A2	7420		9512		9945	
2129		2518		3021	E2	3406		3631		3851		5704		7421		9513		9946 E	
2130		2519			E2 *	3407		-	C1 *		F3 *	5734 5999		7422 7423		9514 9515		9947 C 9948 E	
	D2 *	2520			E1 *		E4 * E3 *	3648 3649		3853	F2 *		D2 *	7500		9516		9949 E	
2152 2153		2521 2522		3030			E3 *	3650			F3 *	6010		7501		9517		9950 E	
2154		2525			D2 *	3411		3651	B2 *		A2 *	6011		7502		9518		9953 E	
2155	F1	2526	C4		D2 *		E4 *		B1 *		F2 *		F1 *	7503		9520		9954 F 9956 C	
2156		2527			D2 *	3415			B1 *	3863 3864	A2 *	6053	E2 *	7504 7505		9521 9523		9957 E	
2158		2528			D1 * D1 *	3417 3420			C2 *		F2 *	6106		7506		9524		9959 F	
2161 2162	F1 D2 *	2529 2530			E3 *	3421			C2		F2 *	6107		7507	B4	9530	B5	9965 A	43
2163		2531		3044	E2 *	3422	F4 *	3658	C2 *	3875	F2 *	6110		7508		9531		9967 F	
2169	D2 *	2532	B4		E2 *		E4 *		C2 *		F2 *	6112		7509		9540		9969 E	
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	D2 *	2534 2535			D2 * D3 *	3425 3426			C2 *		F3 *		E2*	7512		9604	B2	9978	
2180 2194		2535			D3 *	3427			A5 *		F3 *	6141	E2	7513	A4 *	9605	C2	9979	D3
2195		2537	B4	3111	D4 *	3428	F4		C2 *		F2 *		B1 *	7514		9606		9980 E	
2196	A1	2538			D3 *	3429			C2 *		E2 *		D2 *	7515		9607		9981 D 9982 F	
2197		2539	B4	3115		3430		3666 3667			E2 *		D2 *	7516 7540		9608 9609		9982 F	
	E1	2540 2541			E1 *	3431 3432			C2 *		E2 *		C1 *	7600		9610		9984 F	
2248		2602			E1*		F4 *	3669	C2 *	3892		6277	D2	7654	C3 *	9611	B2	9987 E	E3
2261	D1 *	2604	B1	3119	E1 *	3434	F4 *		C2		F2 *		D3 *	7657		9612		9988 E	
2262	D1 *	2606	B1 *	3120	Ë1 *	3435	D4 *	3671	B2 *	4001	D3 *	6370	D2 *	7658	U2 -	9614	U1	CB1 A	٠.

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CB2 A1 CV1 A2 CV3 D3 DC1 A1 FSE1 A1

M11 A5 M12 B5

M7 C2 ML1 F3 ML2 F3

ML5 F2

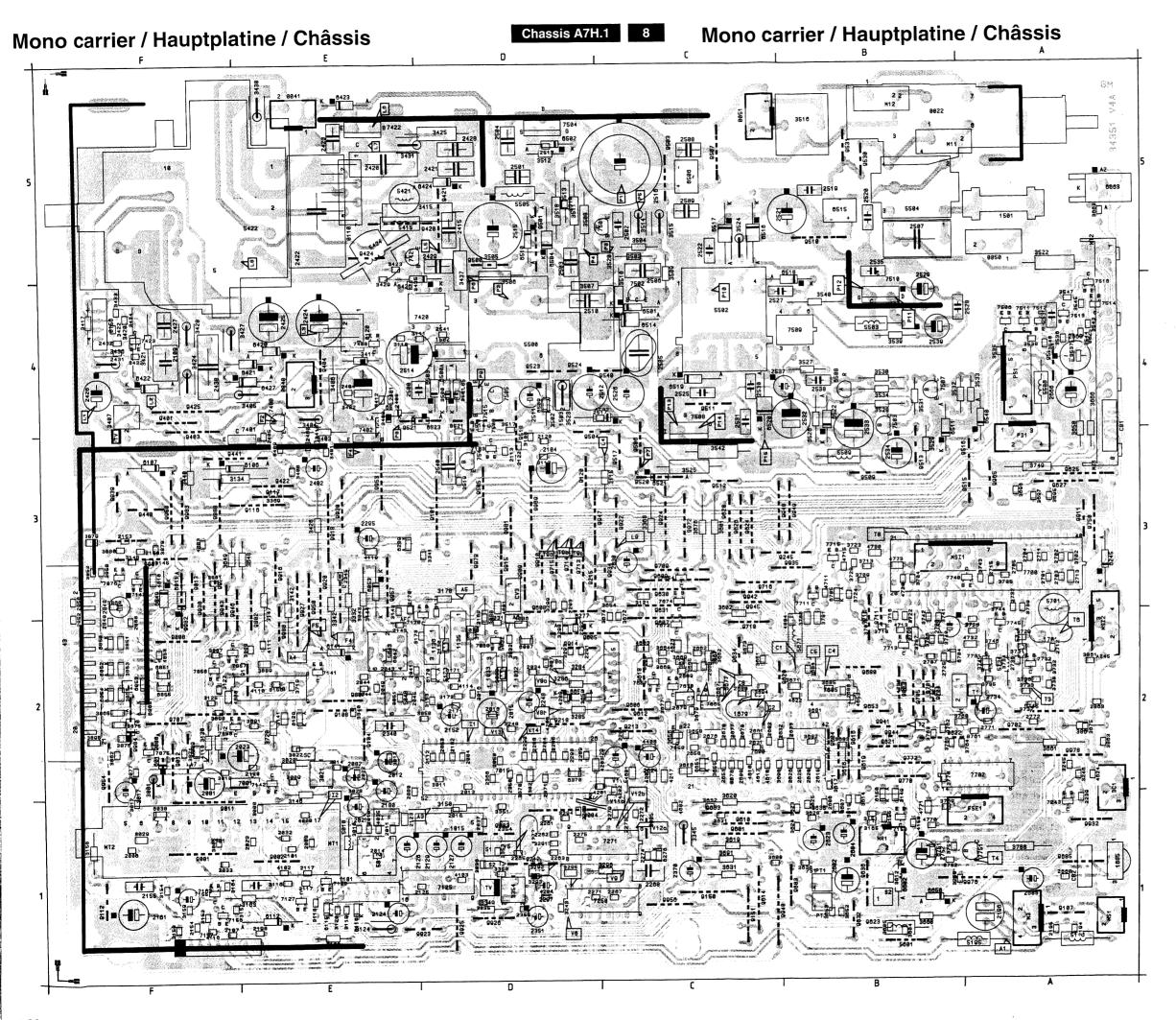
MR1 B1

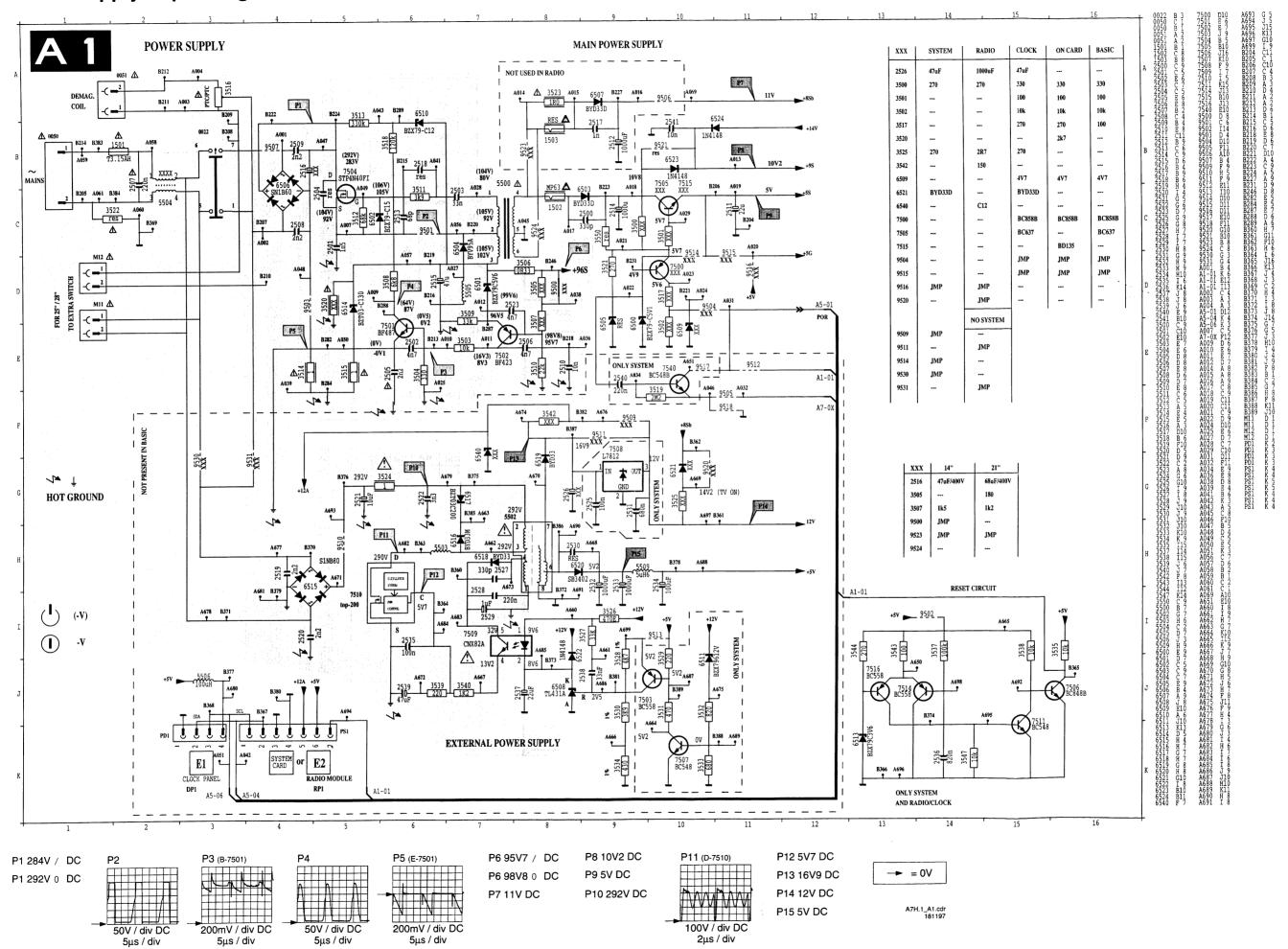
MSI1 A3

MSI2 A2 PD1 A3

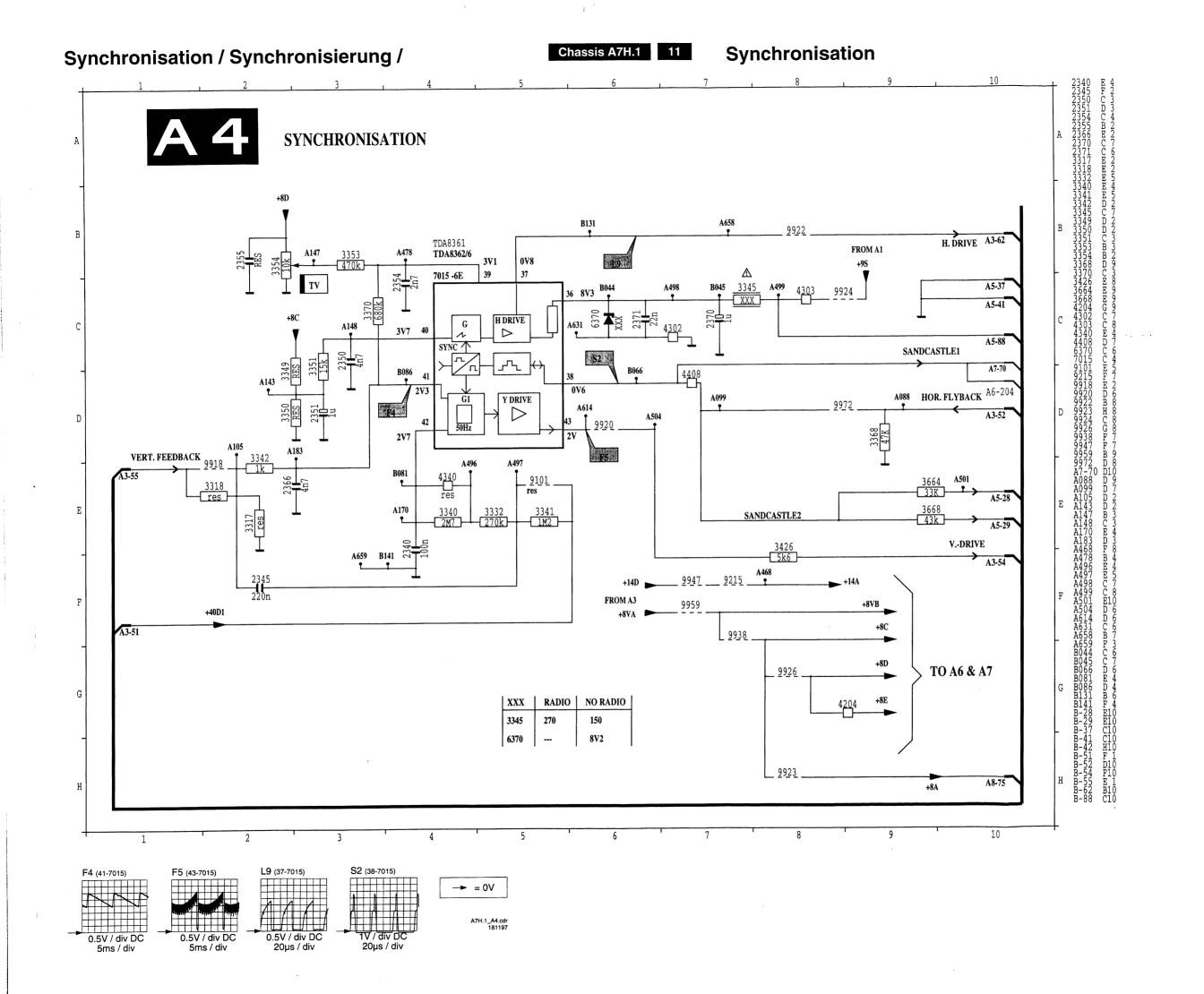
PT1 B1 PT2 B1

S2 B1



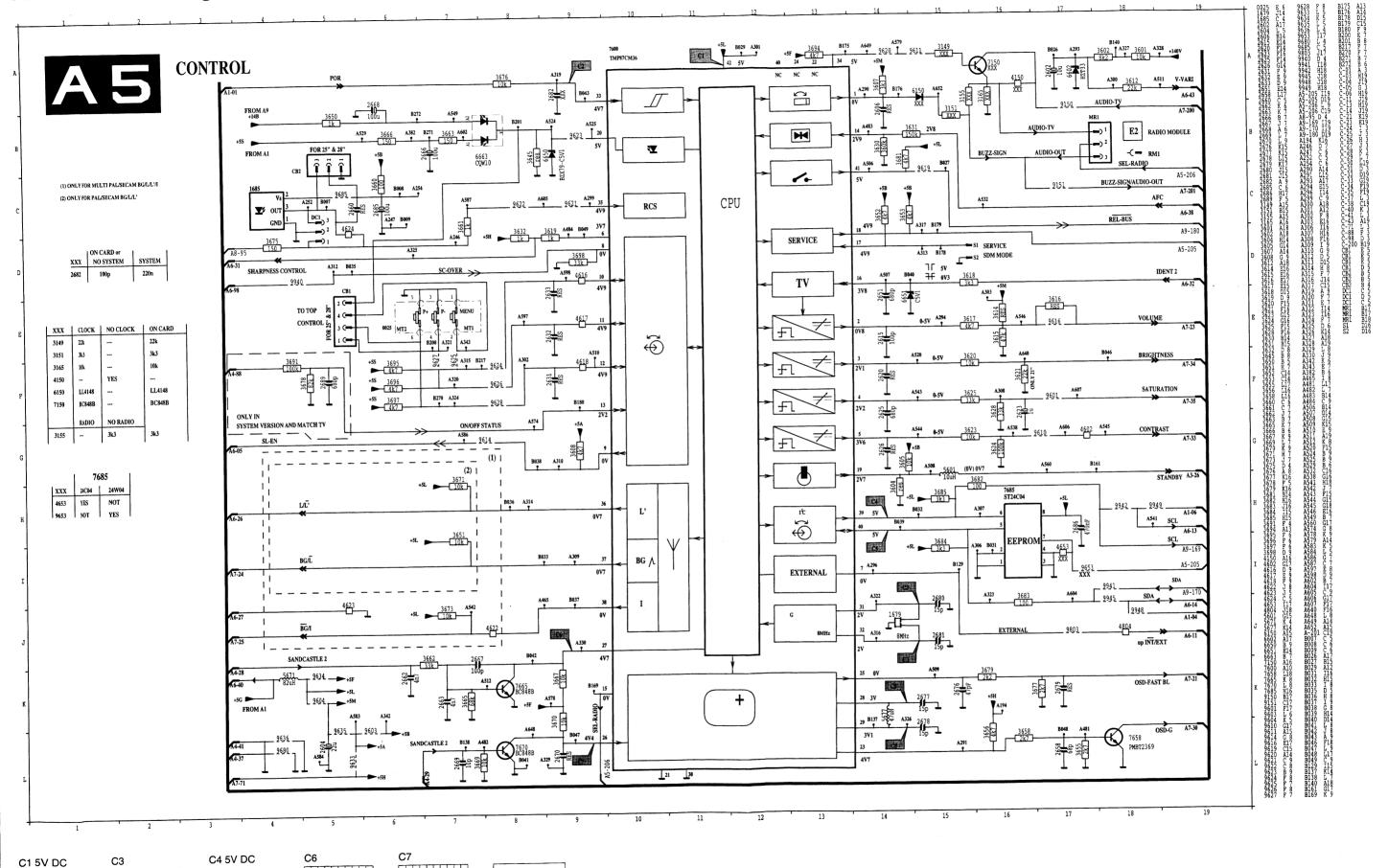


PCS 91 670



--> = 0V

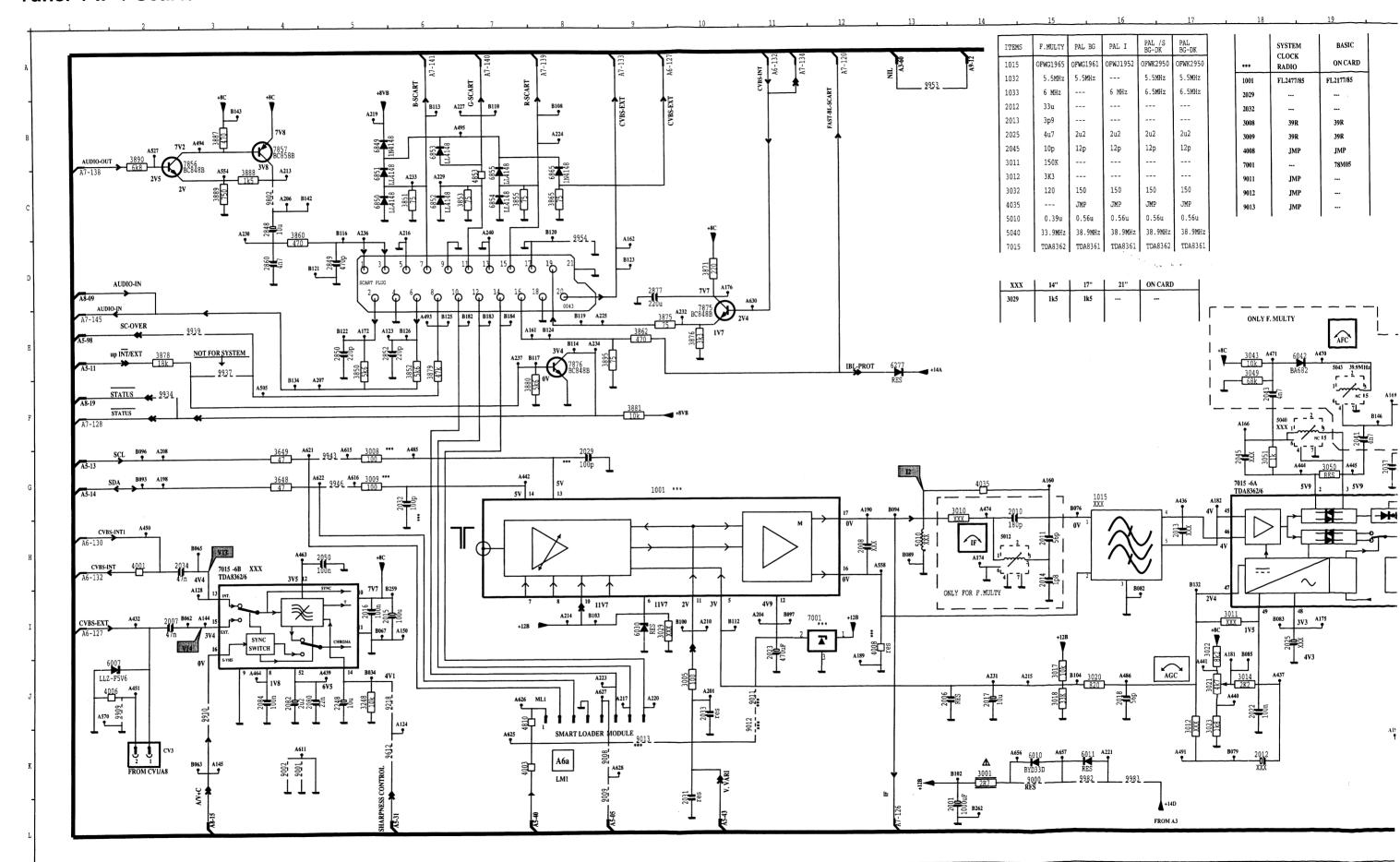
1V / div DC 20µs / div



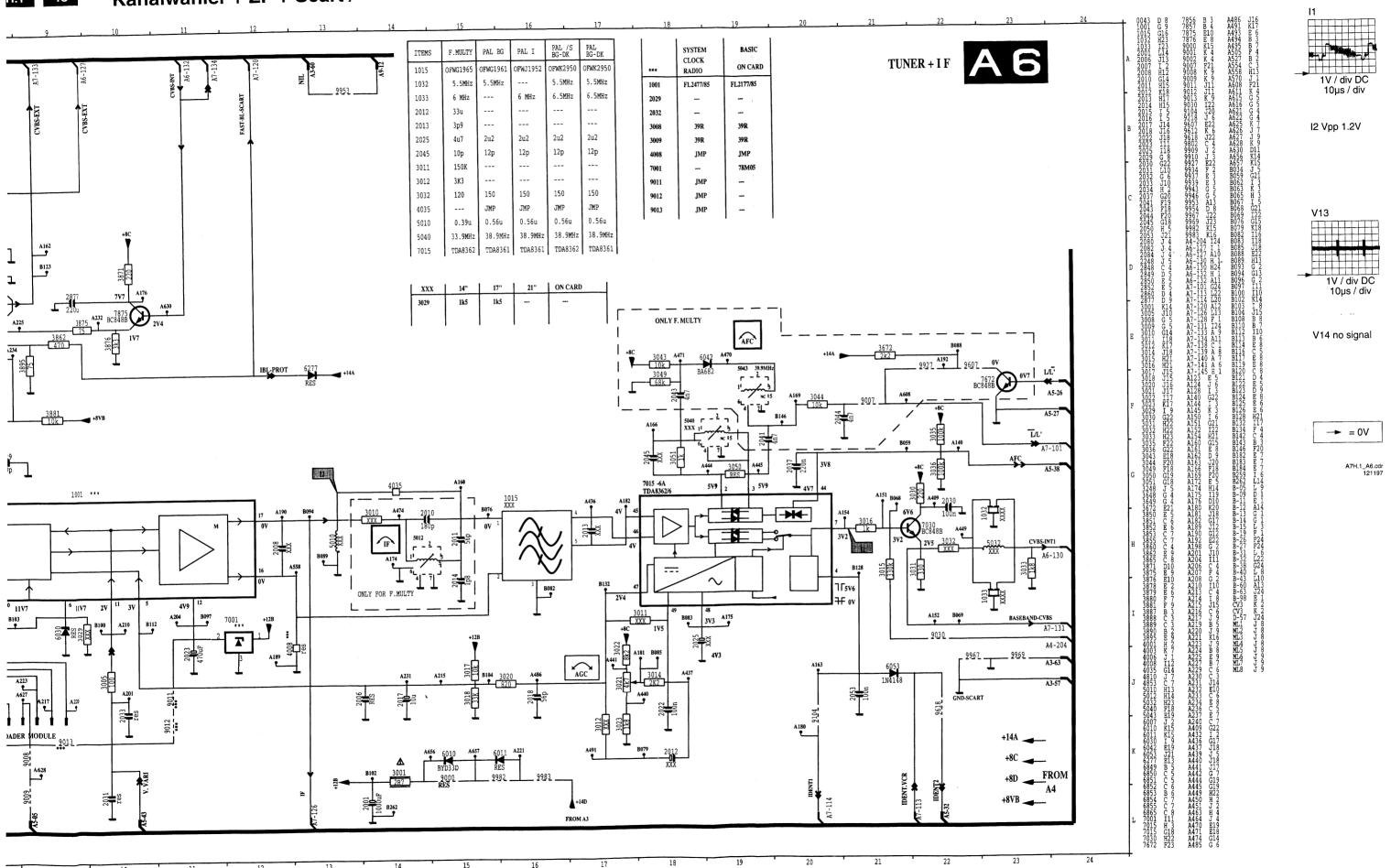
PCS 91 672

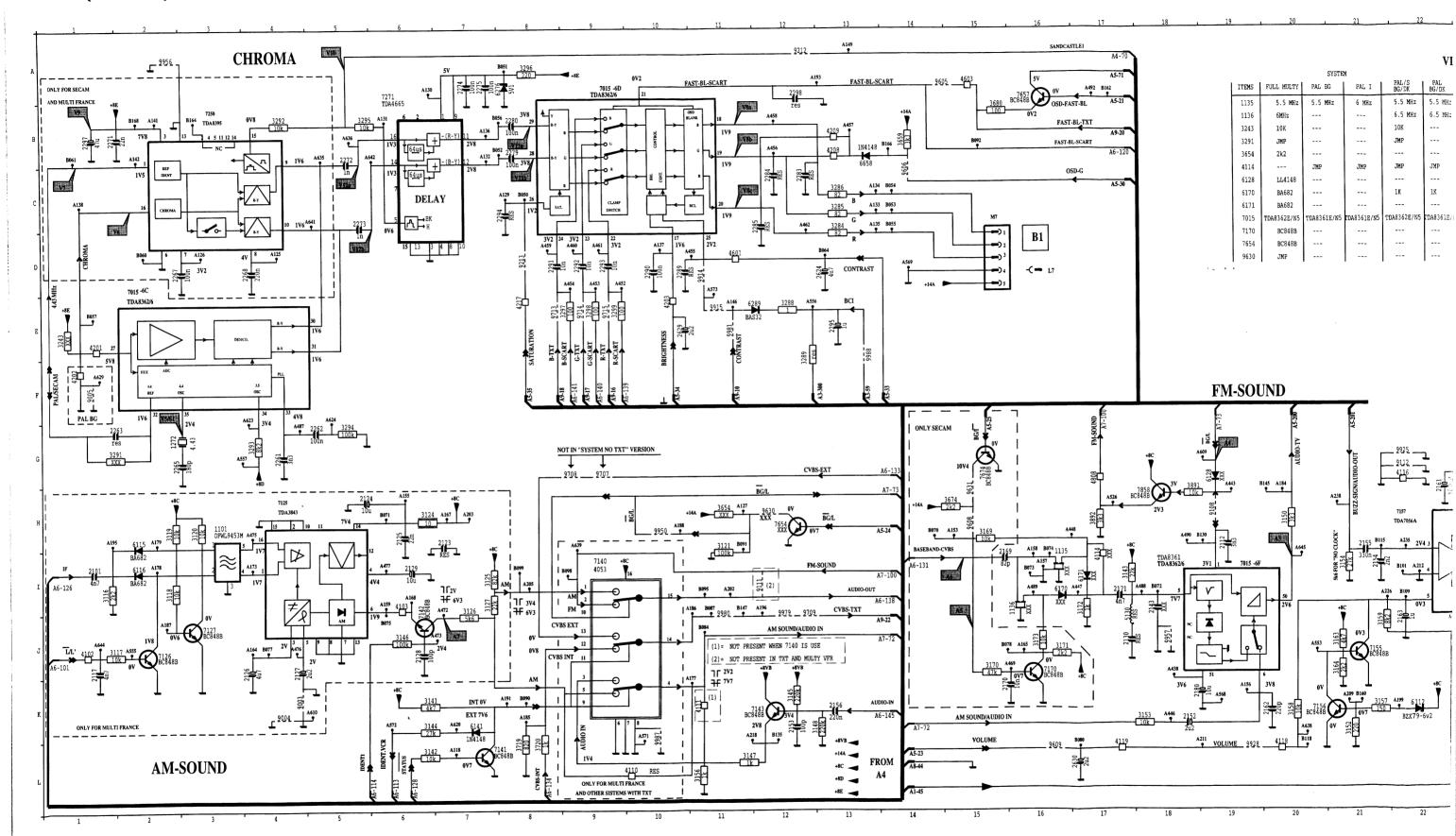
C2 4V6 DC

C5 5V DC



Kanalwähler + ZF + Scart /





-**>** = 0V

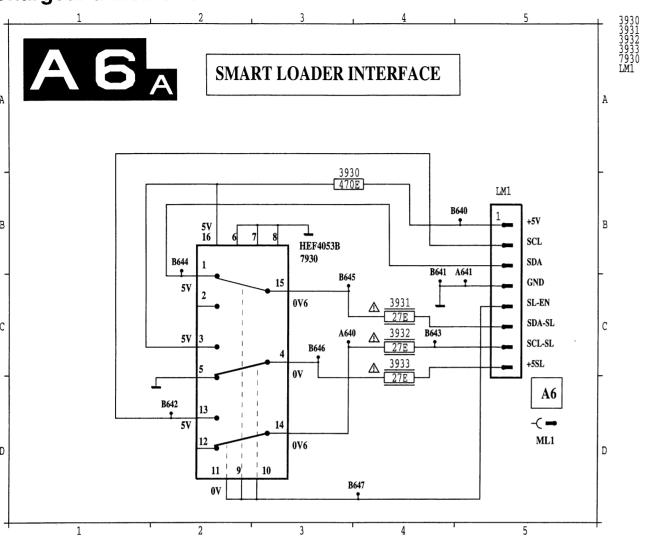
0.5V / div DC 20µs / div

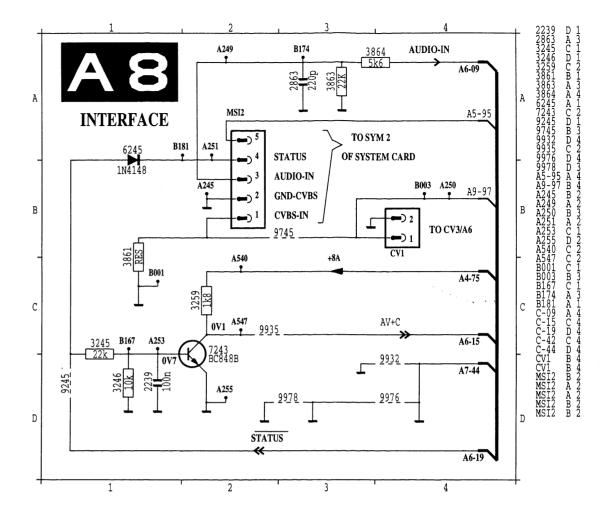
1ms / div

# Smart loader interface / Smart lader / Chargeur à mémoire

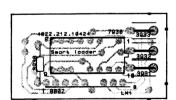
Chassis A7H.1 15

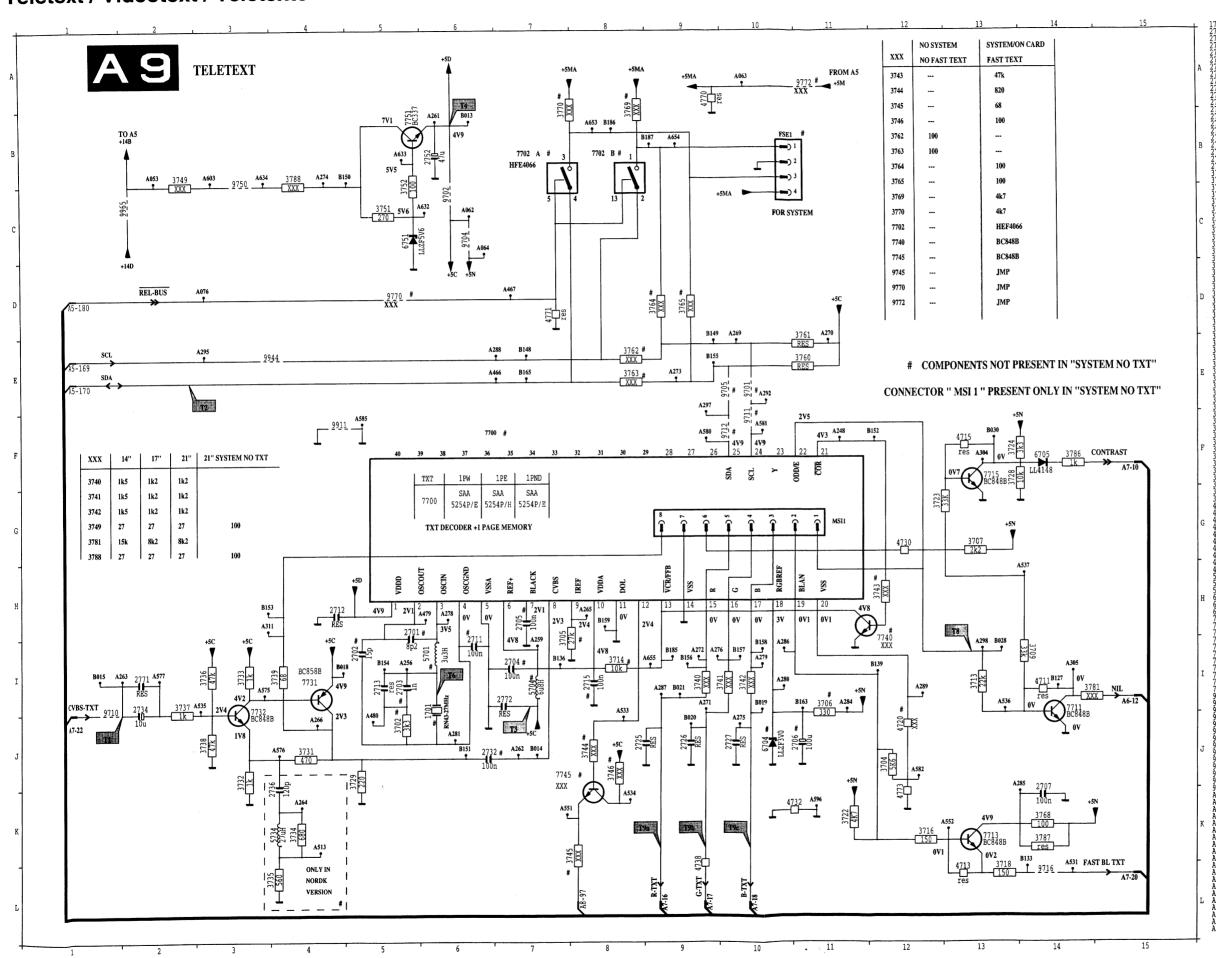
# Interface / Interface / SVSH verbindung





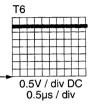
# Smart loader

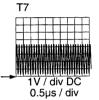


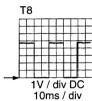


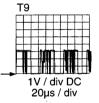


T2 5V DC
T3 4V9 DC
T4 4V9 DC
T5 5V DC



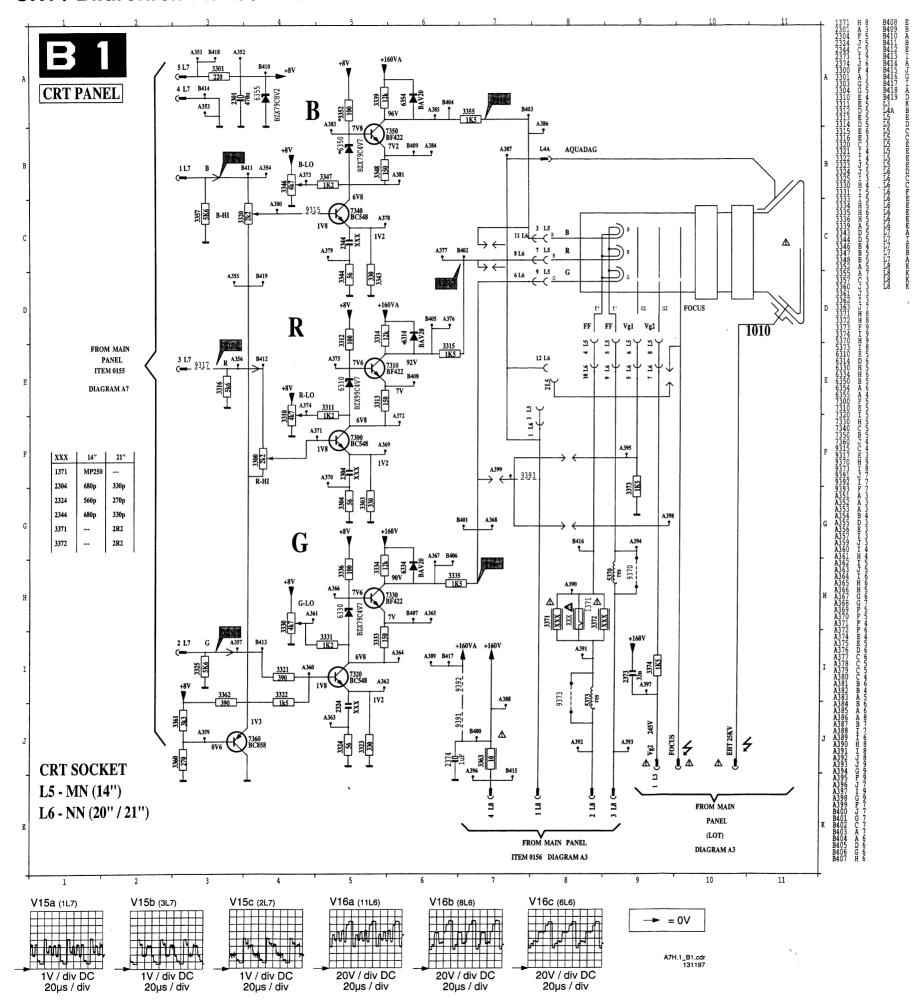


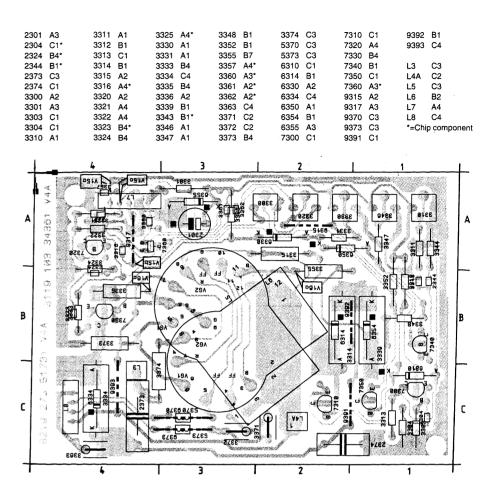




→ = 0V

A7H.1\_A9.cdi

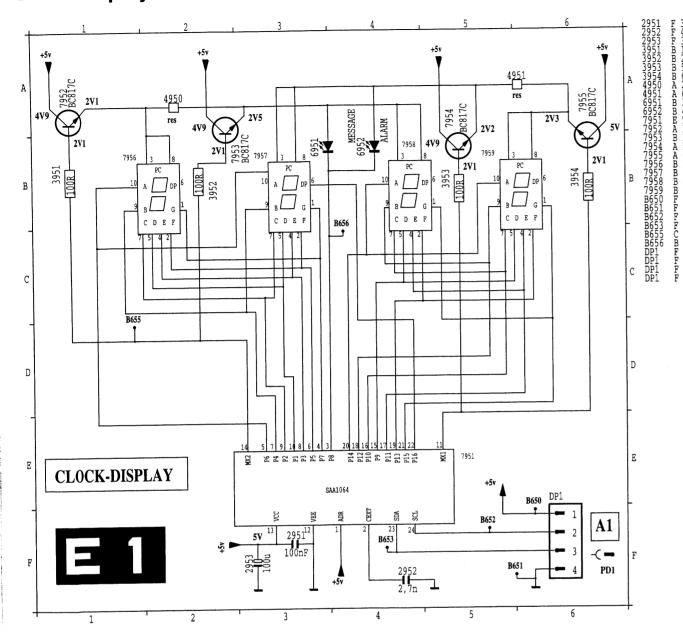


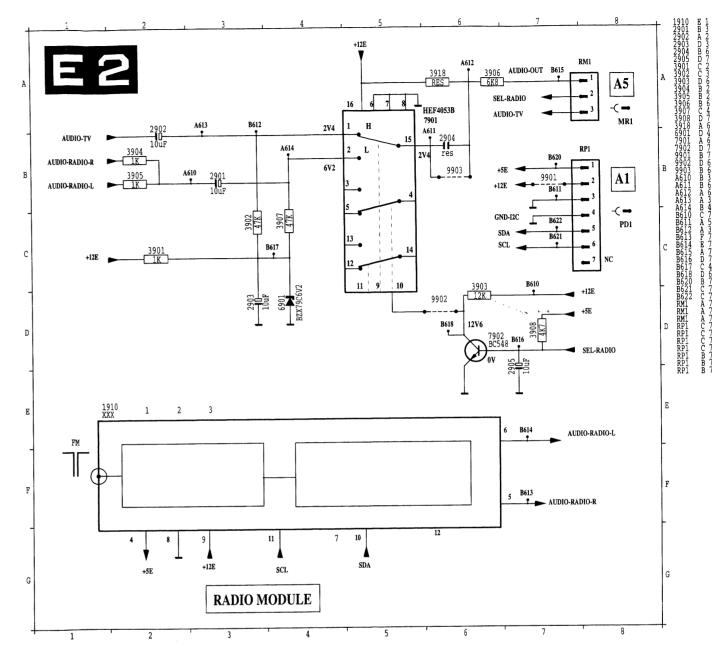


# Clock-display / Uhr-Platte / Platine d'horloge

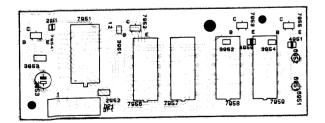


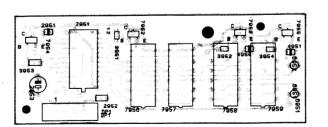
# Radio-module / Radiomodul / Module de radio



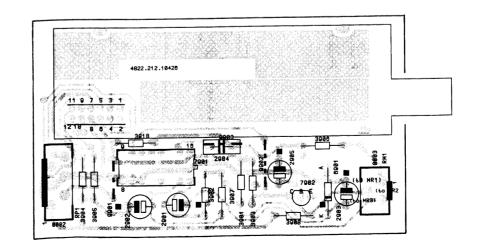


# Clock panel





Radio module



# 8. Electrical adjustments

Adjustments on the main panel (Fig. 8.1)

### Horizontal centring 1.1

Is adjusted with potentiometer R3354.

# 1.2 Picture height

Is adjusted with potentiometer R3407.

# 1.3 Focusing

Is adjusted with the focusing potentiometer in the line output

# IF filter (only for sets with SECAM LL' reception possibility)

Connect a signal generator (e.g. PM5326) via a capacitor of 5p6 to pin 17 of the tuner and adjust the frequency for 40.4 MHz.

Connect an oscilloscope to pin 1 of filter 1015. Switch on the set and select system Europe (BG/L is "low" for BGIDK reception).

Adjust L5012 for a minimum amplitude.

### 1.5 AFC

a. For sets with SECAM LL' reception possibility: Connect a signal generator (e.g. PM5326) as indicated in point 1.6. Connect a voltmeter to pin 44 of IC7015/6A. Adjust the frequency for 33.9 MHz and select system France (L/L' is "high" for L' reception). Adjust L5040 for

Next adjust the frequency for 38.9 MHz and select system Europe (L/L' is "low" for BGILDK reception). Adjust L5043 for 3V5 (DC).

b. For sets without SECAM LL' reception possibility: Connect a signal generator (e.g. PM5326) as indicated above and adjust the frequency for 38.9 MHz (for PAL I at 39.5 MHz). Connect a voltmeter to pin 44 of IC7015/6A. Adjust L5040 for 3V5 (DC).

### RF AGC

If the picture of a strong local transmitter is reproduced distorted, adjust potentiometer R3021 until the picture is undistorted.

Or:

Connect a pattern generator (e.g. PM5518) to the aerial input with RF signal amplitude

Connect a multimeter (DC) at pin 5 of tuner.

Adjust R3021 so that voltage at pin 5 of tuner is  $7V5 \pm 0V5$  (DC).

# Adjustments on the CRT panel (Fig. 8.1)

# Vg2 cut-off points of picture tube

Apply a pattern generator (e.g PM5518) and set it to a white raster pattern.

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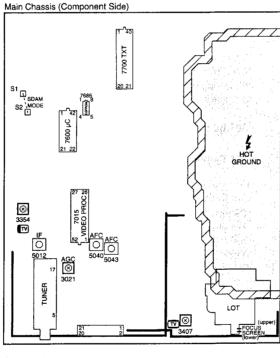
Adjust contrast and Vg2 at minimum (Vg2 with potentiometer in line output transformer to the left). Adjust brightness until the DC voltage across potentiometer 3320 is 0V.

Adjust R3346 (B), R3330 (G) and R3310 (R) for a level of 115V on the collectors of transistors 7350, 7310 and

Adjust Vg2 potentiometer until the gun that first emits light is just no longer visible. Adjust the two other guns with the respective controls (3346, 3330 or 3310 or for until just no light will be visible.

# 2.2 Grey scale (white D)

Apply a test pattern signal and adjust the set for normal operation. Allow the set to warm up for about 10 minutes. Adjust R3300 and R3320 (R3263 and R3273 for 20") until the desired grey scale has been obtained.



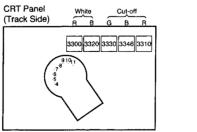


Fig. 8.1

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# 9. Circuit description

For the description of the audio and video processing circuits see the description in the AA5 AA manual. For the description of the clock panel (Diagram E1), the radio module (Diagram E2) the TXT part (Diagram A9) and the smart loader panel (Diagram A6a), see AA5H.1 AA Chassis manual.

# Description of the power supply and the deflection part

In the A7H.1 AA chassis all power circuits are mounted on the main carrier panel

The power supply can be divided in 2 parts:

- External power supply (not switched off by power
- Main power supply (switched off by power switch).
- External power supply (with transformer item 5502). This power supply is equal to the switched mode power supply as already introduced in the AA5H.1 chassis. Supply functions of the "Extra power supply" in AA5H.1 chassis are in A7H.1 taken over by the External power supply.
- Main power supply (with transformer item 5500) and deflection

This power supply and deflection are the same ones as used in L6.1 and L6.2 chassis.

For this power supply is valid that the +96V supply for the line output stage is not mains isolated. And therefore the line output stage and horizontal deflection coil connections on the CRT are also not mains isolated.

Remark:

With this supply single isolated picture

tubes can be used.

For a description of the main power supply and belonging deflection circuit see below.

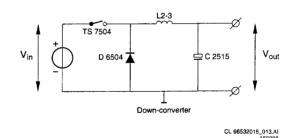


Fig. 9.1

# Principle of the down-converter (Fig 9.1)

The main power-supply is a self-oscillating down converter with an auxiliary winding to help the FET to switch.

When switch TS7504 is closed, the voltage on L2-3 is Vin-Vout. During this time, energy is stored in the coil and energy is delivered to the load. When switch TS7504 opens, the energy stored in the coil will be stored in the output capacitor (C2515). This is due to the fact that the current through the coil has to decrease linear. When the switch is open the current is floating through D6504, L2-3 and C2515. By controlling the duty-cycle of the switch, the output voltage can be regulated.

# 1.2 Start-up (see diagram A1)

When the switch TS7504 is closed, the input voltage is placed over winding 2-3 of transformer 5500, which acts as coil L2-3 in Fig 8.1. Via resistors R3513.R3518 and R3512 the switch is turned on for the first time. Zener diode D6502 prevents that the Ugs of the FET becomes higher than 15V. When the input voltage is on winding 2-3, there is also a voltage on winding 1-2. Via winding 1-2 the correct switching voltage is obtained. The DC-part of this voltage is blocked by capacitor C2503.

Diode D6510 acts as a protection in start-up and in short-circuit situations. During start-up the output capacitor C2515 is empty. It takes a relative long time to charge the gate to a voltage high enough to switch on the FET. This is due to the fact the diode D6510 is conducting. When this diode is conducting, the current that would normally flow into the gate of the fet to switch on the FET, is now flowing into C2515. In this way a smooth start-up is guaranteed.

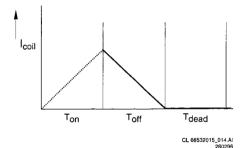


Fig. 9.2

# General way of working (Fig 9.2)

The state of the power-supply can be divided into three areas (see Fig. 9.2):

- In this state the FET is conducting and T-on: energy is stored in the coil and in the output capacitor.
- In this state the fet is non conducting and - T-off: the energy stored in the coil is fed to the output capacitor.
- Tdead: Fet is out of conduction and there is no energy in the coil.

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# **Circuit description**

T-on; In the T-on state, switch TS7504 is switched on. When the switch is on the voltage over resistors R3514-R3515 is a direct measure for the current through winding 2-3. This is a negative voltage. When this voltage becomes below a certain level, TS7501 starts conducting and will switch off the fet. In this way it is prevented that the coil can go into saturation. This could be the case when the output voltage is very low. (long on time of the FET). When the output-voltage becomes too high during T-on the FET will be switched off. (see Output-voltage regulation)

T-off; Due to the stored energy a current will start to flow through D6504, C2515 and winding 2-3. Due to the fact that the current is flowing through this circuit, a voltage with reverse polarity is on winding 1-2. In this way the fet remains off until the current through winding 2-3 reaches zero. Now a new cycle will start. The fet will be switched on and all starts over again.

**T-dead**; If the output voltage is too high (for example in a low load situation) the FET remains off till the output-voltage is not to high anymore.

# 1.4 Output voltage regulation

This is done by the circuit D6501, R3509, TS7502, R3505, R3507, R3510. Transistor TS7502 can only conduct when the voltage on the base is 0V7 lower than the voltage the voltage on the emitter. This means that the voltage drop over resistors R3505 and R3507 should be 5V6 (zenerdiode) + 0V7(base-emitter). This is reached when the output voltage exceeds the 100V. Now transistor TS7502 starts conducting, which brings transistor TS7501 in conduction. As a consequence the gate voltage of the fet becomes very low and the fet stops conducting. As long as the output voltage is too high the fet stays out of conduction.

### 2. Protections

### 2.1 Overvoltage protection

A disadvantage of a down converter is that if the switch becomes a short-circuit, the output voltage will increase to the input voltage. This could damage circuits. In this power-supply there is a protection to prevent this. If the output voltage becomes higher than 130V, zener diode D6514 starts to conduct. The Vin will be short circuited. This will blown the main fuse 1501 and protect in this way all the other circuits.

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### 2.2 Short-circuit and start-up protection

The short-circuit protection works the same as the start-up protection. If the output-voltage is very low in case of a start-up or a short-circuit condition, The gate will be charged very slowly due to the fact that zenerdiode D6510 is conducting. So the current is not only charging the gate but is also flowing into the output capacitor. In this way it takes a few milliseconds to switch on the fet. Diode D6510 takes also care that the fet never remains in his power consuming (linear) area.

If the output voltage is very low, it also takes a large time before the current through winding 2-3 reaches zero. The power supplied to the circuit is in this way very low and protects in this way the circuit.

# 2.3 Other output voltages

The output voltages +8Sb,+14V +9S and +5S and +5G are made by winding 5-6. During the time that the FET TS7504 is not conducting, energy is transformed to this winding (flyback principle) and the voltages mentioned above are created. From the +9S, the +5S voltage is derived. This voltage is stabilized by transistors TS7505, TS7500 and zenerdiode D6500. D6500 is the reference voltage and TS7505 is delivering the current. When zenerdiode D6500 starts conducting, the voltage over resistor R3502 becomes high and a POR signal is created.

# 3. Degaussing

R3516 is a dual PTC (2 PTC's in one housing). After switching "on" the set, the PTC is cold, so low ohmic. This makes the degaussing current high. After degaussing the PTC is heated, so high ohmic. This makes the degaussing current low. After degaussing the PTC remains heated by the mains.

# 4. Line-circuit (Diagram A3)

The primary side of the line-circuit and the deflection coil are connected to the hot earth. The driver-circuit contains an opto-coupler to create isolation between the low-signal parts and the mains. The optocoupler is driven by pin 37 of IC7015-6E via transistor TS7103.

When TS7103 is not conducting, (the LED of the opto-coupler is also out of conduction) TS7421 is also not conducting. In this way TS7422 will conduct and the 96V is placed over winding 2-1 of the LOT. A voltage over winding 2-1 of the LOT will cause a voltage over the windings 8-10, 6-10 and 9-10. Now energy will be transformed from the primary to the secondary-side and charge capacitors C2424 and C2425.

# Circuit description

C2430 will be charged to the difference of the +40D and +14D (=26V) when TS7422 is conducting. When TS7422 stops conducting, the voltage of pin 8 of the LOT will become very negative. This forces C2430 to be charged to 26V plus the absolute value of pin 8. When TS7422 starts conducting again the voltage of pin 8 of the LOT will increase and so the voltage on the anode of D6422. In this way the 160V is created. This means that during the off-time of TS7422, C2430 is charged and during the on-time of TS7422, the energy in C2430 is given to C2426.

When transistor TS7103 conducts, the LED of the opto-coupler will be activated. This causes the transistor of the opto-coupler to conduct, which drives TS7421 in conduction. This brings TS7422 out of conduction. Due to this construction, this circuit is protected against missing line-drive pulses. When a line-drive pulse is missed, the line-transistor stays out of conduction, due to the fact that the diode of the opto-coupler is forced into conduction by TS7103. In this way nothing can be damaged when there is no line-drive. Winding 4-3 is an extra winding to help TS7422 to switch.

On the secondary-side of the LOT there is a circuit consisting of TS7423, R3422, R3433, R3434, C2431 and C2432. This circuit creates a pulse when TS7422 switches off. This pulse indicates that horizontal flyback takes place. This information is fed to IC7015-6E to blank the picture.

# 4.1 Stand-by

The standby signal from the mC is low in case of stand-by. Now TS7103 is brought into conduction by R3112. As mentioned before this will switch off the line-output stage completely.

### 5. Deflection

# 5.1 Horizontal deflection

The voltage over capacitor C2422 is the same as the voltage over C2515 (96V, see Diagram A1). When TS7422 is conducting this voltage is placed over the horizontal deflection coil. This causes a linear increasing current through this coil. In this way deflection is created. When TS7422 switches of flyback takes place and it starts all over again. L5424 is used for linearity correction.

### 5.2 Vertical deflection

Vertical deflection is based on a balance amplifier. Or TS7401 or TS7402 is conducting. This depends on the signal V-drive. If V-drive is high TS7401 conducts and the voltage of C2401 is placed over the deflection coil. Now the picture is written. When V-drive is low, TS7402 conducts and the +40V supply voltage minus the voltage over C2401 is placed over the deflection coil. Flyback takes now place. In this way deflection is generated.

R3407 is used to adjust the vertical shift. With this resistor the level of the signal VFB is adjusted. R3402 and C2404 are used to damp oscillation of the deflection coil with his parasitic capacitance.

The signal NIL from the mC is used to create a non-interlaced mode. This is done by creating a small DC current through the deflection coil.

10. Directions fore use

Chassis A7H.1

# **Directions fore use**

# **PHILIPS Hotel TV**

This product has been especially designed by Philips for institutional applications. These istruction for use are a quick reference for installers. A complete instruction for use is also available. For more information ask the nearest Philips branch office.

# **TV INSTALLATION**

The installation requires the remote control RC 8611.

Place the TV on a solid base.

Leave at least 5 cm around each side of the TV for ventilation.

To prevent any faults and unsafe situations, do not place any objects on top of the sets.

The TV can only operate at a mains voltage of 220/240 V-, 50 Hz.

- Select the last TV channel available by pressing TV or +.
- Press the ∠/P button on the local keyboard than press the ∠- button on the remote control for more than 4 seconds.
- > Installation menu appears.

Use the cursor up and down to navigate into the menu lines. Use the cursor left and right to select the menu options. Use the digit button to insert numbers.

### **MENU**

• Language.

To select the menu and the On Screen Display language: [ENGLISH - FRANCAIS - DEUTSCH].

### Configuration

Attention: The configuration of the TV is set by Philips, changing the configuration may change the availability of the menu options and the featuring of the TV.

TV system: To choose the TV system [SINGLE - UHF - MULTI F].

Teletext: To enable the teletext [YES - NO].

Clock: To enable the clock [YES - NO].

Radio: To select the radio type [INT (internal) - EXT (external) - NONE].

Interface system: To enable the interface of the system [YES - NO].

# Number of programs

TV: To assign the max. number of TV programs [1-99].

INFO: To assign the max. number of info programs [1-99].

RADIO: To assign the max. number of radio programs [1-99].

Note: Radio available only if Configuration-Radio set to INT or EXT.

PAY TV: To assign the max. number of PAY TV programs [1-99].

Note: PAY TV available only if Configuration-Interface system set to YES.

The total max. number of programs available is 120.

# TV installation

System: To select the TV system: [EUROPE, FRANCE,UK].

Note: System appears only if "MULTI F" is selected in the Configuration menu.

Search: To search for the video channels or to input the frequency digit.

Fine tune: To adjust the tuning when a video channel is not well tuned.

Programme: To assign a video channel to a TV or INFO or PAY TV program.

More: More program options

- Protection: To set the program protection [YES NO].
- Picture Mute: To blank the picture of a video program [YES NO].
- Sound Mute: To mute the sound of a video program [YES NO].

Store: To store the selections.

# • Radio install

Note: Available only if configuration radio set to INT or EXT.

Search: To search for the radio channels or to input the frequency digits.

Programme: To assign a radio channel to a radio program.

Protection: To set the program protection [YES - NO].

Store: To store the selections.

# Parameter setting

### Initial setting

Switch on channel: To select the switch on program [TV - INFO].

Switch on volume: To set the switch on volume [00 - 63].

Display standby: To set the light intensity of the led display in standby mode [1-5].

Display on: To set the light intensity of the led display in TV on mode [1-5].

Welcome message: To display the welcome message [YES - NO].

To insert the message use the cursor up and down to select the character and the cursor left and right to

# Picture setting

To set picture settings (low-normal-high) that can be recalled with the PICTURE button on the RC.

### **Block function**

Hotel mode: To enable maximum volume, block local, free protected options [YES - NO].

Maximum volume: To set the max. volume limitation [00 - 63].

Block local: To lock the local controls of the TV.

Free protected: To free at once all the protected programs.

Time setting: To set the time of the clock.

Time downloading: To link the time of the clock to the teletext of the selected program (TV-INFO-PAY TV).

# Tips

# • To quickly install the TV

Philips has designed also other tools for quick installation, like the SMART-LOADER or the ACI. For more information ask the nearest Philips branch office.

### To clean the TV

Clean the TV using a slightly damp chamois leather.

Never use aggressive cleaning agents.

### • Problems with no solution:

Switch your TV off and on again with the ① button.

# Never attempt to repair a defective TV set yourself.

Switch off the TV and call your dealer or TV-technician when nothing helps or when:

- A white horizontal stripe appears across the whole screen.
- The red lamp below the screen starts blinking when no buttons are pressed on the remote control.

## **Environmental information**

Your TV contains material which can be recycled and reused. At end of life specialized companies can dismantle the discarded TV to concentrate the reusable materials and to minimize the ammount of materials to be disposed off.

Please find out about local regulations on disposal of your old TV set.

Televisions consume energy in the stand-by mode. Energy consumption contributes to air and water pollution. We advice you to switch off your TV overnight instead of leaving it on stand-by. You save energy and the picture tube is demagnetised which maintains good picture quality.

PCS 91 681 GB

```
AV switch signal (0V antenna, 4V SVHS, 8V
AV+C
AFC
                   Automatic Frequency Control
                   Automatic Gain Control
AGC
AMSOUND/
                   AM modulated sound signal or audio extern in
    AUDIO IN
                   Conducting layer on rear side surface of CRT
AQUADAG
                   Extern Audio in via scart socket
AUDIO-IN
AUDIO-OUT
                   Audio out via scart socket
                   Blue signal
                   Blue signal (via scart)
B.SCART
                  Output signal of video detector
BASEBAND-
    CVBS
                   Beam current information
Switch signal for PAL BG and PAL I
BEAM-INFO
                    Switch signal for PAL BG and SECAM L
BG/L
                    Switch signal for PAL BG and SECAM L "
BG/l'
                   Brightness control
BRIGHTNESS
                    Blue signal via teletext
B-TXT
                    Chrominance signal
CONTRAST
                    Contrast control
                    External CVBS - signal (via scart)
CVBS-EXT
                    Internal CVBS-signal (input via scart)
CVBS-INT
CVBS-INT1
                    Internal CVBS-signal (via tuner)
                    CVBS-signal for teletext
CVBS-TXT
                   Extra high tension for CRT (25KV)
                   Fast blanking via teletext
FAST BL.TXT
FAST.BL.SCART Fast blanking via scart
                    filement voltage for the crt
FOCUS
                    Focus voltage for the CRT
                    Green signal
                    Green signal via scart
G.SCART
                    Green signal via teletext
G-TXT
                    Horizontal drive control
H-DRIVE
                    Horizontal feedback
                   Status signal "high in the external mode.
This signal blocks the IDENT of IC7015-6A
IDENT.VCR
                    temporarily, so the TV is not switched off after
                   IDENT-signal derived from IC7015-6A, that is used for suppressing of the AM-sound signal if
IDENT1
                    no CVBS is present.
Status signal of IC7015-6B. Low CVBS present.
High CVBS not present.
IDENT2
                    Intermediate frequency
 ÎNT/EXT
                    Switch signal Internal/external
                    Switch signal SECAM L/SECAM L'
Ë/Ľ
L/Ľ
                    Switch signal SECAM L/SECAM L'
                    Non Inter Lace
ON/OFF STATUS On/off status signal OSD-FAST BL Fast blanking via OS
                   Fast blanking via OSD
Green signal via OSD
OSD-G
                    Power on reset
                    Red signal
R.SCART
REL-BUS
                    Red signal via scart
                    Release bus signal from system panel.
                    Red signal via teletext
R-TXT
SANDCASTLE1 Sandcastle-signal 1
SANDCASTLE2 Sandcastle -signal 2
SATURATION
                    Saturation
SC-OVER
                    Scart-signal suppression
                    Clock line IIC-bus
                    Data line of the IIC-bud
                    Service Default Mode
SDM
SHARPNESS
                    Sharpness control
    CONTR0L
                    Signal to select the smart loader
SL-EN
                    Standby-switch signal
Switch signal. High CVBS via scart. Low internal
STANDBY
STATUS
                    CVBS
V.-DRIVE
                    Vertical drive
                    Vertical feedback
                    VG2 voltage
VOLUME
                    Volume control
```

Notes:	
No.	
'	

V-VARI

Tuning voltage Luminance signal

Main	carrier [A1,A3-A9]	2045 2045	4822 122 32139 4822 126 13689	18pF 1% 63V	2432▲	5322 126 10223 4822 122 33893	18nF 10% 63V	3011 3012 <sup>4</sup> 3014	4822 051 20154 4822 051 20332 4822 117 11449	3k3 5% 0.1W
Variou	ıs	- 2050 2053 2080▲	4822 126 13296	100nF 10% 16V 100nF 10% 16V 22nF 10% 63V	2500 2501 A	4822 126 11524		3014 3016 3017	4822 117 11449 4822 051 10102 4822 117 10833	1k 2% 0.25W
<b>A</b>	4822 276 12597 Mains switch 4822 276 13307 Operating switch assy	2082 2084 2101 A		2.2μF 100 V 100nF 10% 16V 4.7nF 10% 63V	2502 2503 2505 • 2506			3018 3020 3021	4822 051 20333 4822 116 52231 4822 101 11204	820Ω 5% 0.5W
<b>A</b>	4822 265 30389 Con. 2P (0041)	2104	4822 124 11529	16V 47U 20%	2507 4	4822 121 10512	275V 220N 20%	3022	4822 051 20822	8k2 5% 0.1W
*	4822 265 40596 Con. 2P (0050) 4822 265 30389 Con. 2P (0051)	2109 2112		270nF 5% 63V 3.3nF 10% 63V	2508▲		2.2nF 10% 1KV 2.2nF 10% 1KV	3023	4822 051 20182 4822 116 52175	
•	4822 265 20709 Con. 2P (0061) 4822 264 40207 Con. 3P (0040)	2113 2117	4822 122 33891	3.3nF 10% 63V 4.7nF 10% 63V	2510 <b>4</b> 2511	4822 121 42004 4822 124 41596	10nF 10% 400V	3031 3032	4822 051 20331 4822 051 20121	
	4822 264 40239 Con. 3P (0063) 4822 290 40284 Con. 3P RFK1	2120	4822 122 33175	2.2nF 20% 50V	2512	4822 124 40201	1000μF 20% 16V	3032	4822 117 10353	150Ω 1% 0.1W
	4822 267 41213 Con. 4P eco duc 4822 267 40699 Con. 4P (PD1)	2120 2122		3.3nF 10% 63V 2.2nF 20% 50V	2513 2514	4822 126 13694 4822 124 40201	68pF 1% 63V 1000μF 20% 16V	3033 3035	4822 051 20182 4822 051 20104	
•	4822 267 41208 Con. 4P (0045) 4822 265 30378 Con. 4P (0048)	2122	5322 122 31865	1.5nF 10% 63V	2515 2516	4822 124 81257	47μF 50/10% 200V 47μF 400V 20%	3036 3043	4822 051 20104 4822 117 10833	
		2123 2124	4822 124 41579	2.2nF 10% 63V 10μF 20% 50V	2516	4822 124 11831	68μF 20% 400V	3044	4822 117 10833	10k 1% 0.1W
	4822 265 30899 Con. 5P (0053) 4822 267 30546 Con. 6P	21254	5322 122 32654 4822 124 40769	- 22nF 10% 63V - 4.7μF 20% 100V	2517▲ 2518	5322 122 34123 5322 122 32452		3049 3051	4822 051 20683 4822 051 10102	
	4822 265 40252 Con. 7P RFK1 4822 290 40295 Con. 7P (0049)	2127	4822 124 40763	2.2μF 100 V	2519▲		2.2nF 10% 1KV	3100	4822 051 20154 4822 051 20184	150k 5% 0.1W
	4822 265 40818 Con. 8P (0056)	2128	5322 122 32531	100pF 5% 50V	2520▲	4822 126 11141	2.2nF 10% 1KV	3100 3110	4822 051 20184	
<b>A</b>	4822 267 60243 Con. 21P Scart 4822 492 71655 Spring fix. IC715	2129 <sup>4</sup> 2152	4822 124 41579 4822 124 40763	10µF 20% 50V	2521 ▲ 2522		10μF 20% 400V 3.3nF 10% 500V	3110	4822 051 20391	390Ω 5% 0.1W
	4822 492 11528 Spring fix. IC740	1, 2153	5322 122 32531	100pF 5% 50V	2525	5322 121 42386	100nF 5% 63V	3111	4822 051 20561	560Ω 5% 0.1W
	IC7402 4822 492 70871 Spring fix. IC742	2154 2 2155		330nF 5% 63V	2526 2526	4822 124 40201 4822 124 40433	1000μF 20% 16V 47μF 20% 25V	3112 3115	4822 051 20822 4822 116 83883	
	4822 492 70871 Spring fix. IC750	4 2156	4822 126 13061	220nF 20% 25V	2527 2528	4822 126 13597	330pF 10% 500V	3116 3117	4822 117 11449 4822 117 10833	2k2 1% 0.1W
<b>A</b>	4822 256 92053 Fuse holder	21584 2161	4822 124 40201	4.7nF 10% 63V 1000μF 20% 16V	2528	4822 121 42408 4822 124 40756		3118	4822 117 10833	10k 1% 0.1W
	(1501) 4822 256 91918 LED holder	2162	4822 122 33575	220pF 5% 50V	2531	5322 121 42498	680nF 5% 63V	3119 3120	4822 117 10833 4822 117 10833	
	4822 404 31451 Bracket fix. IR	2163		1μF 20% 100V	2532	4822 124 40201	1000μF 20% 16V			
	receiver 4822 402 10524 Tuner bracket	2169 2170	4822 122 33515 4822 122 33177	82pF 5% 63V 10nF 20% 50V	2533 2534		1000μF 20% 16V 100μF 20% 25V	3121 3124		100k 2% 0.25W 10Ω 5% 0.33W
	(extended) 4822 404 31452 Tuner bracket	21714 21804	5322 126 10223	4.7nF 10% 63V 10µF 20% 50V	2535 2536	5322 121 42386 5322 121 42498	100nF 5% 63V	3125 3126	4822 117 11149 4822 116 52289	
	4822 402 10178 Interface bracket	2194	4822 122 33175	2.2nF 20% 50V	2537	4822 124 41596	22μF 20% 50V	3127	4822 051 20223	22k 5% 0.1W
	(TV cap)	2196 2197		′ 3.3µF 20% 50V ⊦ 47nF 10% 50V	2538 2539	5322 121 42489 4822 124 40433		3134▲ 3134▲		
1001	4822 210 10715 Tuner FL2477/85 PLL		4822 126 12944	47nF 10% 50V 100nF 10% 16V	2540	4822 121 42408	220nF 5% 63V	3134 3141▲	4822 053 11569 4822 051 10472	56Ω 5% 2W 4k7 2% 0.25W
1015	4822 242 70936 Filter 38.9MHz OFWJ1952M	2248	4822 124 41579	10μF 20% 50V	2602▲ 2604▲	4822 124 41579 4822 124 41579		3142	4822 116 83864	10k 5% 0.5W
1015▲	4822 242 72197 Filter 38.9MHz OFWK2950M	2261 2262	4822 122 33891 4822 126 10002	3.3nF 10% 63V 100nF 20% 25V	2615 2623	5322 122 32531 4822 124 40756	100pF 5% 50V 1μF 20% 100V	3143 3144	4822 051 20223 4822 116 52264	27k 5% 0.5W
1015	4822 242 81388 Filter 38.9MHz OFWG1961M	2265 2267	4822 126 13689 4822 126 13296	18pF 1% 63V 100nF 10% 16V	2624 2625		4.7μF 20% 100V 680pF.10% 63V	3145 3146	4822 051 20224 4822 116 52234	
1015	4822 242 81737 Filter 38.9MHz OFWG1965M	2268 2271	4822 121 42408	220nF 5% 63V 22nF 10% 63V	2629 2630	4822 124 40763 4822 124 40763	2.2μF 100 V	3147 3148	4822 050 11002 4822 051 20224	1k 1% 0.4W
1032	4822 242 72211 Filter 5.5MHz	2272	5322 122 34123	1nF 10% 50V			·	3149	4822 051 20223	22k 5% 0.1W
1032	(TPS) 4822 242 81712 Filter 5.5MHz	2273	5322 122 34123	1nF 10% 50V	2651 2658	4822 122 32535 4822 126 13694	680pF 10% 63V 68pF 1% 63V	3150 3151	4822 116 52269 4822 051 10332	
1033	(TPWA04B) 4822 153 30025 Filter 6MHz (TFS	2274		100nF 10% 16V	2662 2663	4822 122 33175	2.2nF 20% 50V 4.7nF 10% 63V	3152	4822 117 11139	
1033	4822 242 81301 Filter 6.5MHz	2279	4822 126 13296	100nF 10% 16V 100nF 10% 16V	2666	4822 124 40255	100μF 20% 63V	3153	4822 117 10833	
1033	((TPS) 4822 242 81572 Filter 6MHz (TPS	2280		100nF 10% 16V 100nF 10% 16V	2667 2668	5322 122 32531 4822 124 40255	100pF 5% 50V 100µF 20% 63V	3154 3154	4822 051 20273 4822 051 20562	
1101	4822 242 81423 Filter 38.9MHz	22914	4822 122 33177	10nF 20% 50V	2669 2676	5322 122 32448 5322 122 32452	10pF 5% 50V	3155 <b>4</b> 3156		3k3 5% 0.1W
	OFWL9453M	22934	4822 122 33177 4822 122 33177	10nF 20% 50V	1		•	3157	4822 051 10102	1k 2% 0.25W
1135 1135	4822 242 70714 Filter 5.5MHz 4822 242 71841 Filter 6.0MHz	2295	4822 124 40756	1μF 20% 100V	2677 2678	5322 122 32448 5322 122 32448		3158 3159	4822 116 83864 4822 051 20822	
11364	4822 242 10316 Filter 6.5MHz 4822 242 71713 Filter 6.0MHz	2297		47μF 20% 50V	2680	5322 122 32658	22pF 5% 50V	3163	4822 116 52283	4k7 5% 0.5W
1136		2298 2340		100nF 5% 63V	2681 2682		220nF 20% 25V	3164	4822 117 11449	
1501▲ 1502▲	4822 070 33152 Fuse3.15A 4822 252 51185 Fuse 630mA	2345 2350		220nF 80-20% 50V 4.7nF 10% 63V	2682 2685	5322 122 32531 4822 124 81029	100pF 5% 50V 100μF 20% 25V	3165 A 3169	4822 051 10103 4822 116 83864	
1679 1685	4822 242 10328 X-tal 8MHz 4822 212 30842 IR receiver	2351	4822 124 40756	1μF 20% 100V	2686	4822 126 13482	470nF 80/20% 16V	3170 3171	4822 116 83884	47k 5% 0.5W
1701	4822 242 81246 X-tal 27MHz	2354 2366	4822 122 33177		2689	4022 122 32535	680pF 10% 63V	3172	4822 117 11449 4822 051 10102	1k 2% 0.25W
-		<b>–</b> 2370	4822 124 40756	1μF 20% 100V	2701 2702	5322 122 33244 4822 122 32504		3173 3198	4822 117 10833 4822 050 26808	
-11-		2371			2703	5322 126 10511	1nF 5% 50V	3243	4822 117 10833	10k 1% 0.1W
2001	4822 124 40201 1000μF 20% 16\	2400		470pF 10% 50V 470μF 20% 35V	2704▲ 2705▲	4822 126 10002	100nF 20% 25V 100nF 20% 25V	3245 3246	4822 051 20223 4822 117 10833	
2007▲ 2008	4822 126 12944 47nF 10% 50V 5322 122 32967 5.6pF 10% 63V	2401 2402		1000μF 20% 50V 1.5μF 20% 63V	2706 A 2707	4822 124 41579 4822 126 13296	10μF 20% 50V 100nF 10% 16V	3248	4822 117 10833	10k 1% 0 1W
2010	4822 126 10326 180pF 5% 63V	2402	4822 124 40756	1μF 20% 100V	2711▲	4822 126 10002	100nF 20% 25V	3259	4822 051 20182	1k8 5% 0.1W
2011 2012	5322 122 32661 56pF 5% 50V 4822 124 42058 33µF 20% 50V	2404 A 2405		47nF 10% 50V 2.2nF 20% 50V	27154	4822 126 10002	100nF 20% 25V	3284 3285	4822 116 52202 4822 116 52202	
2013 2014	5322 122 31944 3.9pF 5% 50V 5322 126 10343 1.8pF 5% 63V	2415		22nF 10% 250V	2732	4822 126 13296 4822 124 41579	100nF 10% 16V	3286 3291 A	4822 116 52202 4822 051 20008	
2015	4822 124 81029 100μF 20% 25V				2752▲	4822 124 40433	47μF 20% 25V	3292	4822 117 10833	10k 1% 0.1W
	4822 126 10002 100nF 20% 25V	2420 2420	4822 121 10513 4822 121 10514		2848 <b>4</b> 2849	4822 124 41579 5322 122 32268	10μF 20% 50V 470pF 10% 50V	3293 3294	4822 051 20822 4822 051 20104	
2017▲ 2018	4822 124 41579 10μF 20% 50V 5322 122 32661 56pF 5% 50V	2421	4822 121 51319 4822 121 42365	1μF 10% 63V	2850 2852	4822 122 33575 4822 122 33575	220pF 5% 50V	3295▲		
2022▲	4822 126 10002 100nF 20% 25V	2422▲	4822 121 42376	470nF 5% 250V	2860▲	5322 126 10223	4.7nF 10% 63V	3296	4822 116 83872	
2023 2025	4822 124 80791 470μF 20% 16V 4822 124 40763 2.2μF 100 V	2423	4822 126 12269	680pF 10%R(HR) 2KV	2863 2877	5322 126 10794 4822 126 13061	220pF 5% 63V 220nF 20% 25V	3297 3298	4822 117 10353 4822 117 10353	
2025 2030	4822 124 40769 4.7µF 20% 100V 4822 126 13482 470nF 80/20%	2424		1000μF 20% 50V				3299 3332	4822 117 10353 4822 116 83878	150Ω 1% 0.1W
	16V	2424 2425		680μF 20% 50V 680μF 20% 50V	-□-			3340	4822 051 20275	2M7 5% 0.1W
2034	4822 126 12944 47nF 10% 50V	2426	4822 124 80676	4.7μF 20% 160V	3001▲	4822 052 10278	2Ω7 5% 0.33W	3341 3342	4822 051 20125 4822 050 11002	
2037 2041 •	4822 126 13061 220nF 20% 25V 5322 126 10223 4.7nF 10% 63V	2427 2428	5322 121 42489 4822 121 51319	33nF 5% 250V	3005 3008	4822 051 10102 4822 051 20399	1k 2% 0.25W		4822 052 10151	150Ω 5% 0.33W
20434	5322 126 10223 4.7nF 10% 63V	2429	5322 121 42661	330nF 5% 63V	3009	4822 051 20399	39Ω 5% 0.1W			
2044▲	5322 126 10223 4.7nF 10% 63V	2430	4822 121 42047	180nF 10% 250V	3010	4822 051 20829	8212 5% 0.1W	3351▲	4822 051 20153	15K 5% 0.1W

4822 051 20474 470k 5% 0.1W

4822 051 20101 100Ω 5% 0.1W

3752▲

```
6500
6501 4
                                                                                                                                                                                                 4822 130 34233 BZX79-B5V1
4822 130 34173 BZX79-B5V6
                                                                      4822 117 10834 47k 1% 0.1W
4822 051 20472 4k7 5% 0.1W
3353
                                                                                                                                    4822 051 20101
4822 051 20101
                                                                                                                                                          100Ω 5% 0.1W
100Ω 5% 0.1W
                                                                                                                                                                                                                        BZX79-B5V6
          4822 100 11483 10k 30% 0.1W
4822 116 83884 47k 5% 0.5W
3354
                                                                                                                                                                                       6502
                                                                                                                                                                                                 4822 130 34281 BZX79-B15
                                                                                                                         3763
                                                                      4822 051 10332 3k3 2% 0.25W
3368
                                                                                                                                                                                                 4822 130 42488
4822 130 41487
                                                                                                                                                                                                                        BYD33D
                                                                                                                         3764▲
                                                                                                                                    4822 051 20101
                                                                                                                                                           1000 5% 0.1W
                                                                                                                                                                                       6503
          4822 051 20224 220k 5% 0.1W
4822 051 20684 680k 5% 0.1W
                                                                                                                                                          100Ω 5% 0.1W
100Ω 5% 0.5W
                                                                                                                                    4822 051 20101
                                                                                                                                                                                       6504
                                                                                                                                                                                                                        BYV95C
          4822 051 20684 680k 5% 0.1W
4822 051 20333 33k 5% 0.1W
                                                                       4822 050 11002 1k 1% 0.4W
                                                            3610
3370
                                                                                                                                                                                                  4822 130 70021 S1NB60
                                                                                                                                                                                       6506
                                                                                            10k 5% 0.5W
22k 5% 0.1W
                                                                       4822 116 83864
4822 051 20223
                                                                                                                         3768
                                                                                                                                    4822 116 52175
                                                            3620
3400
                                                                                                                                    4822 051 20472
4822 051 20472
                                                                                                                                                          4k7 5% 0 1W
           4822 051 20154
                                 150k 5% 0.1W
                                                            3621
                                                                                                                                                                                                 5322 130 31938 BYV27-200
                                                                                                                                                          4k7 5% 0.1W
                                                                                                                                                                                       6507
                                                                                            33k 5% 0.1W
                                680Ω 5% 0.1W
                                                                       4822 051 20333
           4822 051 20681
                                                                                                                                                                                                  4822 209 81397 TL431CLPST
4822 130 80883 BZV55-C4V7
3402
                                                                       4822 117 10833
                                                                                            10k 1% 0.1W
100k 5% 0.1V
                                                                                                                         3781
                                                                                                                                    4822 051 10153 15k 2% 0.25W
                                                            3623
                                                                                                                                                                                       6509
           4822 117 11454 820Ω 1% 0.1W
                                                            3624
                                                                       4822 051 20104
                                                                                                                                                                                                  4822 130 34197 BZX79-B12
                                                                       4822 051 20104 100k 376 0.1W
4822 051 20333 33k 5% 0.1W
4822 051 20333 33k 5% 0.1W
4822 117 12345 360k 1% 0.1W
                                                                                                                         3781
                                                                                                                                    4822 051 10822
                                68Ω 5% 0.33W
3403
           4822 052 10689
                                                                                                                         3786
3788
                                                                                                                                    4822 051 10102
4822 053 10279
                                                                                                                                                          1k 2% 0.25W
27Ω 5% 1W
100Ω 5% 0.5W
3404▲
          4822 052 10158
4822 052 11228
                                 1Ω5 5% 0.33W
                                                            3628
                                                                                                                                                                                                  5322 130 83584 BZT03-C130
                                                                                                                                                                                       6514
                                                            3630
34054
                                                                                                                                                                                                 5322 209 12018
4822 130 32896
                                                                                                                                                                                                                        DECSM
                                                                       4822 050 21504 150k 1% 0.6W
                                                                                                                          3788
                                                                                                                                    4822 116 52175
           4822 052 11478 4Ω7 5% 0.5W
34054
                                                                                                                                                                                       6516
                                                                                                                                    4822 051 20562
                                                                                                                                                           5k6 5% 0 1W
           4822 053 10182 1k8 5% 1W
4822 101 11376 220Ω pot.metel
                                                                                                                                                                                                                        BZT03-C200
                                                                                                                                    4822 116 83953
                                                                                                                                                           75Ω 5% 0.125W
                                                                                                                                                                                                  5322 130 31932
                                                                                                                          3851▲
3407
                                                                                                                                                                                                  4822 130 42488
                                                                                                                                                                                                                        BYD33D
                                                                       4822 051 10102 1k 2% 0.25W
4822 116 52195 47Ω 5% 0.5W
                                                                                                                                                                                       6518
                                                                                                                          3852
                                                                                                                                    4822 051 20562
                                                                                                                                                          5k6 5% 0.1W
                                                            3632
3409
           4822 051 10102 1k 2% 0.25W
                                                                                                                                    4822 116 83953 75Ω 5% 0.125W
4822 116 83953 75Ω 5% 0.125W
                                                                                                                          3853▲
           4822 051 20393 39k 5% 0.1W
4822 117 11449 2k2 1% 0.1W
                                                            3648
                                                                                                                                                                                       6519
                                                                                                                                                                                                  5322 130 31938
                                                                                                                                                                                                                        BYV27-200
                                                                       4822 116 52195 47Ω 5% 0.5W
4822 050 11002 1k 1% 0.4W
                                                                                                                          38554
                                                                                                                                                                                                  4822 130 32715
4822 130 42488
                                                                                                                                                                                                                         SB340
                                                                                                                          3860▲
                                                                                                                                    4822 051 20471 470Ω 5% 0.1W
                                                                                                                                                                                        65204
                                                            3650
                                                                                                                                                                                                                        BYD33D
                                                                                                                                                                                       6521
                                                                       4822 117 10833 10k 1% 0.1W
                                                            3651
           4822 053 12279 27Ω 5% 3W
                                                                                                                                                                                                  4822 130 30621
4822 130 30621
                                                                                                                                                                                                                         1 N 4 1 4 8
                                                                                                                                                           470Ω 5% 0.1W
                                                                       4822 051 20472 4k7 5% 0.1W
4822 051 20472 4k7 5% 0.1W
                                                                                                                                    4822 051 20471
                                                                                                                          3862▲
                                                            36524
           4822 053 12399 39Ω 5% 3W
 3415
                                                                                                                                     4822 051 20223 22k 5% 0.1W
4822 116 52289 5k6 5% 0.5W
                                                                                                                                                                                       65234
                                                                                                                          3863
3864
           4822 116 52272 330k 5% 0.5W
4822 116 52303 8k2 5% 0.5W
                                                            36534
                                                                                                                                                           5k6 5% 0.5W
75Ω 5% 0.125W
                                                                       4822 117 11449 2k2 1% 0.1W
4822 117 11384 2k7 1% 0.1W
4822 116 52283 4k7 5% 0.5W
                                                                                                                                                                                       65244
                                                                                                                                                                                                  4822 130 30621
                                                                                                                                                                                                                         1N4148
                                                            3654
 3419
                                                                                                                                                                                                  4822 130 34197
                                                                                                                                                                                                                        BZX79-B12
                                                                                                                          38654
                                                                                                                                     4822 116 83953
                                                            3655
 3420
           4822 116 83882 39k 5% 0.5W
                                                                                                                                                                                                                         HZT33
                                                                                                                                                                                                  4822 130 82037
                                                                                                                                     4822 117 11503
                                                                                                                                                           220Ω 1% 0.1W
                                                                                                                                                                                       6602
                                 47k 5% 0.5W
 3420
                                                                                                                                                                                                  4822 130 34233 BZX79-B5V1
4822 130 80905 BZV55-F5V1
                                                                                                                                                                                        6650
                                                                                                                          3875
                                                                                                                                     4822 116 83953
                                  15k 5% 0.5W
 3421
           4822 116 52244
                                                                                                                                                                                        6651
                                                                       4822 117 11384 2k7 1% 0.1W
4822 051 20182 1k8 5% 0.1W
                                                                                                                          3876
                                                                                                                                     4822 051 10332 3k3 2% 0.25W
           4822 117 11384
4822 051 20561
                                 2k7 1% 0.1W
560Ω 5% 0.1W
                                                            3658
                                                                                                                                     4822 117 10965
4822 051 10473
                                                                                                                                                           18k 1% 0.1W
47k 2% 0.25W
                                                             3659
                                                                                                                                                                                                  4822 130 30621
4822 209 72895
                                                                                                                                                                                                                        1N4148
                                                                                                                                                                                        66584
                                                                                              100Ω 5% 0.5W
1k 1% 0.4W
                                                            3660
                                                                        4822 116 52175
                                                                                                                          3879
 3424A
           4822 052 10109 10Ω 5% 0.33W
                                                                        4822 050 11002
                                                                                                                          3880
                                                                                                                                     4822 051 20562 5k6 5% 0.1W
                                                                                                                                                                                        6663
                                                             3661
                                                                                                                                                                                                                        BZV55-B3V0
                                                                                                                                                                                        6704
                                                                                                                                                                                                   4822 130 82886
                                                                                              33k 5% 0.1W
                                                             3662
                                                                       4822 051 20333
4822 117 10353
            4822 053 11129
 3425
                                                                        4822 117 10353 35K 5% 0.1W
4822 051 20683 68k 5% 0.1W
4822 051 20683 68k 5% 0.1W
                                                                                                                                                                                                                         BAS321
                                                                                                                                     4822 117 10833 10k 1% 0.1W
                                                                                                                          3881
            4822 116 52289 5k6 5% 0.5W
4822 052 11108 1Ω 5% 0.5W
                                                             3663
 3426
                                                                                                                           3887
                                                                                                                                    4822 051 20471
4822 117 11139
                                                                                                                                                           470Ω 5% 0.1W
1k5 1% 0.1W
                                                                                                                                                                                        6751
                                                                                                                                                                                                   4822 130 81227
                                 1Ω 5% 0.5W
1Ω 5% 0.5W
                                                             3664
                                                                                                                                                                                                  4822 130 30621
4822 130 80446
                                                                                                                                                                                        69404
                                                                                                                                                                                                                         1N4148
                                                                                                                          3888
 3428
            4822 052 11108
                                                                                                                                                                                                                         BAS32L
                                                                                                                                                            750Ω 2% 0.25W
                                                                                                                                                                                        6850
                                                                        4822 116 83868
                                                                                              150Ω 5% 0.5W
                                                                                                                           3889
                                                                                                                                     4822 051 10751
 3430
            4822 052 10821
                                  8200 5% 0.33W
                                                             3666
                                                                                                                                     4822 117 11507
4822 117 10833
                                                                                                                                                           6k8 1% 0.1W
10k 1% 0.1W
                                                                                                                                                                                                   4822 130 80446 BAS32L
                                                                                                                                                                                        6851
            4822 052 1147
                                 470Ω 5% 0.5W
1M 5% 0.1W
                                                                       4822 116 83864 10k 5% 0.5W 4822 051 20433 43k 5% 0.1W 4822 117 10833 10k 1% 0.1W 4822 116 83864 10k 5% 0.5W 4822 051 10103 10k 2% 0.25W 4822 117 11449 2k2 1% 0.1W 4822 117 10833 10k 1% 0.1W 4822 117 11449 2k2 1% 0.1W 4822 116 83864 10k 5% 0.5W 4822 117 11384 2k7 1% 0.1W
 3431
                                                                                                                                                                                                   4822 130 80446
                                                                                                                                                                                                                         BAS32L
                                                                                                                           3891
 3432
            4822 051 20105
                                                                                                                                     4822 117 10833 10K 1% 0.1W
4822 116 52269 3k3 5% 0.5W
4822 116 83953 75Ω 5% 0.125W
4822 051 10008 0Ω 5% 0.25W
                                                                                                                                                                                                   4822 130 80446 BAS32L
                                                                                                                           3892
                                                                                                                                                                                        6853
            4822 051 20225 2M2 5% 0.1W
4822 051 20393 39k 5% 0.1W
4822 051 20223 22k 5% 0.1W
                                                             3668
                                                                                                                           3895
                                                             3669
3670
 3433
                                                                                                                                                                                                   4822 130 80446 BAS32L
                                                                                                                           4xxx
                                                                                                                                                                                                   4822 130 80446 BAS32L
                                                                                              10k 2% 0.25W
                                                                                                                                                                                         6855
                                                             36714
                                                                                                                                                                                         6865
                                                                                                                                                                                                   4822 130 80446 BAS32L
 34364
            4822 052 10151
            4822 053 11103
                                  10k 5% 2W
                                                             3673
             4822 116 83868
                                  150Ω 5% 0.5W
330Ω 5% 0.1W
                                                             3674
                                                                                                                                                                                         4822 157 63081 0.56μH 20%
                                                                                                                           5010
  3500
             4822 051 20331
                                                                                                                                     4822 157 63858 0.39μH
4822 157 53539 0.27μH
4822 157 53634 5.6μH 1
                                                                                                                           5010
5012
            4822 117 11504 270Ω 1% 0.1W
4822 051 20101 100Ω 5% 0.1W
                                                             3677
                                                                                                                                                            0.27μH 5%
5.6μH 10%
                                                                                                                                                                                                   4822 209 80817 L7805CV
                                                                                                                                                                                                   4822 209 15106 TDA8361E/N5
4822 209 15251 TDA8362E/N5
  3501 4
                                                                        4822 117 11149 82k 1% 0.1W
                                                                                                                           5032
                                  10k 5% 0.5W
10k 5% 0.5W
            4822 116 83864
4822 116 83864
4822 116 52219
                                                                        4822 117 11449 2k2 1% 0.1W
4822 051 20101 100Ω 5% 0.1W
4822 051 20472 4k7 5% 0.1W
  3502
                                                                                                                           5040
5040
                                                                                                                                      4822 157 71518
                                                                                                                                                            33mH
                                                                                                                                                                                         7015
                                                              3679
                                                                                                                                      4822 157 71516
4822 157 71522
4822 157 71517
                                                                                                                                                            38mH
                                                                                                                                                                                         7030▲
                                                                                                                                                                                                   5322 130 41982
                                                                                                                                                                                                                          BC848B
            4822 116 52219 330Ω 5% 0.5W
4822 116 52213 180Ω 5% 0.5W
                                                             3680 A
3681 A
  3504
                                                                                                                                                                                                                          BC847C
                                                                                                                           5043
                                                                                                                                                            38mH
                                                                                                                                                                                         7125
                                                                                                                                                                                                   4822 209 63105
                                                                                               100Ω 5% 0.1W
                                                                                                                            5195
                                                                                                                                      4822 157 11213
                                                                                                                                                            22uH
                                                              3682▲
                                                                        4822 051 20101
                                                                                                                                                                                                   5322 130 41982 BC848B
5322 130 41982 BC848B
                                                                                                                                      4822 157 11213 22μH
                                                                                                                                                                                         7126
                                                              3683
                                                                        4822 051 20101
4822 051 20332
                                                                                               100Ω 5% 0.1W
                                                                                                                           5196
             4822 117 12094
                                                                                                                                                                                                   5322 130 41982 BC848B
5322 209 10576 HEF4053BD
  3506
                                                                       4822 051 20332 3k3 5% 0.1W
4822 051 20332 3k3 5% 0.1W
                                                              3684▲
            4822 050 21202 1k2 1% 0.6W
4822 050 21502 1k5 1% 0.6W
4822 053 10682 6k8 5% 1W
  3507▲
3507
                                                                                                                           5415
5415
                                                                                                                                      4822 157 10359 33uH
                                                                                                                                                                                         7140
                                                              36854
                                                                                                                                      4822 157 71519 47µH 5%
4822 157 11421 100µH 10%
                                                                        4822 116 52234 100k 5% 0.5W
4822 051 20472 4k7 5% 0.1W
                                                              3691
3694
  3508
            4822 116 52271 33k 5% 0.5W
4822 117 12096 22k 1%
4822 053 10272 2k7 5% 1W
                                                                                                                            5421
                                                                                                                                      4822 140 10639
                                                                                                                                                            LOT (Line output
                                                                                                                                                                                         7142▲
                                                                                                                                                                                                   5322 130 41982 BC848B
                                                                                                                            5422
  3510
                                                                                                                                                                                         7143^
                                                                                                                                                                                                   5322 130 41982
                                                                                                                                                                                                                          BC848B
                                                                        4822 051 20472 4k7 5% 0.1W
4822 051 20472 4k7 5% 0.1W
4822 051 20472 4k7 5% 0.1W
                                                              3695▲
3696▲
                                                                                                                                                             transformer)
                                                                                                                                                                                                   5322 130 41982
                                                                                                                            5424▲
                                                                                                                                      4822 156 50097
                                                                                                                                                            Linearity coil
                                                                                                                                                                                         71504
            4822 116 52297 68k 5% 0.5W
4822 053 10334 330k 5% 1W
4822 052 10108 1Ω 5% 0.33W
                                                                                                                                     4822 146 10461
4822 146 10748
                                                                                                                                                                                         71554
                                                                                                                                                                                                   5322 130 41982
                                                                                                                                                                                                                          BC848B
                                                                                                                            5500
                                                              3697▲
  3513
                                                                                                                                                                                                   5322 130 41982
                                                                                                                                                                                                                         BC848B
TDA7056A/N2
                                                                        4822 051 20333
4822 051 20332
                                                                                               33k 5% 0.1W
3k3 5% 0.1W
                                                                                                                            5502 ▲
                                                                                                                                                            Power trafo
                                                                                                                                      4822 526 10494 Ferrite bead
4822 157 53348 Choke
4822 157 70826 2.4μH
                                                                                                                                                                                                   4822 209 32531 TDA7056
5322 130 41982 BC848B
                                                                                                                                                                                         7157
                                                              3702▲
            4822 052 10108 1Ω 5% 0.33W
4822 116 40137 PTC 36Ω 365V
4822 051 20101 10Ω 5% 0.1W
                                                                                                                                                                                         7170▲
                                                                         4822 051 20562 5k6 5% 0.1W
                                                                                                                            5504
  3515▲
                                                                                                                                                                                                   5322 130 41982 BC848B
                                                                                                                                                                                         7243
                                                                        4822 051 20273 27k 5% 0.1W
4822 051 20331 330Ω 5% 0.1W
                                                                                                                            5505
                                                              3705
             4822 051 20101 100Ω 5% 0.1W
4822 117 11504 270Ω 1% 0.1W
                                                              3706
                                                                                                                                                                                                    4822 200 00120 TDA8395/N2
                                                                         4822 117 11449 2k2 1% 0 1W
                                                                                                                            5506
                                                                                                                                                                                                   4822 209 12635 TDA4665/V4
4822 130 40981 BC337-25
                                                                                                                                      4822 157 71915 5.6μH
4822 157 51462 10μH
                                                                         4822 051 20333 33k 5% 0.1W
                                                                                                                            5509
                                                                                                                                                                                         7271
7400 •
             4822 117 12952
                                   120k 5% 1W
                                                              3709
             4822 051 20105
                                   1M 5% 0.1W
                                                                                                                                                                                                   4822 130 40917 BD238
4822 130 40823 BD139
  3519
                                                                         4822 051 20223 22k 5% 0.1W
                                                                                                                            5671
                                                                                                                                      4822 157 71703
                                                                                                                                                            82uH
             4822 117 11504 270Ω 1% 0.1W
   3521
                                                                                                                                      4822 152 20678 33μH
4822 157 60141 3.3μH
                                                                                               10k 1% 0.1W
150Ω 1% 0.1W
                                                                                                                                                                                         7402
             ^{4822} 052 10108 ^{1}\Omega 5% 0.33W ^{4822} 052 11108 ^{1}\Omega 5% 0.5W
                                                                        4822 117 10833
                                                              3714
                                                                                                                                                                                         7402
                                                                                                                                                                                                   4822 130 44235 BD237
4822 130 10025 CNX82
                                                                                                                            5701
                                                              3716
                                                                        4822 117 10353
                                                                                                                                                                                                   4822 130 44235 BD237
4822 130 10025 CNX82A
5322 130 44647 BC368
4822 130 10206 BUT11AX
5322 130 41983 BC858B
  3524▲
                                                                         4822 117 10353
                                                                                               1500 1% 0.1W
                                                                                                                            5704
                                                                                                                                      4822 157 60123 6.8µH
             4822 053 11278 2Ω7 5% 2W
                                                                                                                                                                                         7421
                                                                                               820Ω 1% 0.1W
                                                                         4822 117 11454
                                                              3719
                                                                        4822 050 11002 1k 1% 0.4W
4822 051 20472 4k7 5% 0.1W
4822 051 20333 33k 5% 0.1W
4822 051 20332 3k3 5% 0.1W
4822 117 10833 10k 1% 0.1W
                                                                                                                                                                                         7422
              4822 116 83876 270Ω 5% 0.5W
   3525
                                                                                                                                                                                         7423
                                                                                                                            →
                                                              3722
             4822 116 83883 470Ω 5% 0.5W
4822 116 52271 33k 5% 0.5W
  3526
3527
                                                              3723
                                                                                                                                                                                         7500
                                                                                                                                                                                                    5322 130 41983 BC858B
                                                                                                                                      4822 130 81227 BZV55-F5V6
                                                                                                                            6007
                                   4k7 1% 0.6W
   3528
              4822 050 24702
                                                                                                                                                                                                   4822 130 41646 BF423
                                                                                                                                                                                         7501
                                                                                                                            6010
                                                                                                                                      4822 130 42488
                                                                                                                                                             BYD33D
                                                              3728
   3529
              4822 116 83872 220Ω 5% 0.5W
                                                                                                                                       4822 130 80888
                                                                                                                                                             BA682
                                                                                                                                                                                         7502
             4822 050 23902 3k9 1% 0.6W
4822 116 83883 470Ω 5% 0.5W
                                                                                                                                                                                                    4822 130 44197
4822 130 63725
   3530
                                                                                                                                                                                                                           BC558B
                                                                        4822 117 11503 220Ω 1% 0.1W
4822 051 20471 470Ω 5% 0.1W
4822 051 10102 1k 2% 0.25W
                                                                                                                                      4822 130 30621
                                                                                                                            60534
   3531
                                                                                                                                                                                                                           STP4NA40FI
                                                                                                                                      4822 130 34167
4822 130 34167
4822 130 80888
                                                                                                                            6106
6112
                                                                                                                                                             BZX79-B6V2
                                                                                                                                                                                         7504
              4822 116 52231
4822 116 52228
                                   820Ω 5% 0.5W
680Ω 5% 0.5W
                                                               3731 4
                                                                                                                                                             BZX79-B6V2
                                                                                                                                                                                         7505
                                                                                                                                                                                                    5322 130 44349 BC635
                                                               3732
                                                                                                                                                                                                   5322 130 41982 BC848B
4822 130 40938 BC548
4822 209 81726 MC7812CT
   3533
                                                                         4822 051 10102 1k 2% 0.25W
4822 117 10834 47k 1% 0.1W
                                                                                                                            6115
                                                                                                                                                             BA682
   3534 ▲
             4822 050 26801 680Ω 1% 0.6W
                                                                                                                                      4822 130 80888 BA682
                                                                                                                                                                                         7507
                                                               3736
                                                                                                                                                                                         7508▲
                                                               3737
                                                                         4822 051 10102 1k 2% 0.25W
              4822 117 10833
   3535
                                                                                                                                                                                                    4822 209 71634 TCDT1101G
                                                                        4822 117 10834 47k 1% 0.1W
4822 051 20689 68Ω 5% 0.1W
                                                                                                                            6128
                                                                                                                                      4822 130 80446
                                                                                                                                                             BAS32I
   3536
              4822 117 10965
                                   18k 1% 0.1W
                                                                                                                                      4822 130 30621
4822 130 80446
                                                                                                                                                             1N4148
              4822 051 20104
4822 117 10833
                                   100k 5% 0.1W
10k 1% 0.1W
                                                               3739
                                                                                                                                                                                                    4822 209 15416 PWR-TOP200
                                                                                                                            6150
                                                                         4822 051 20122 1k2 5% 0.1W
                                                                                                                                                                                                   5322 130 41982
5322 130 41983
   3538
                                                                         4822 117 11139 1k5 1% 0.1W
                                                                                                                            6170
                                                                                                                                      4822 130 80888
                                                                                                                                                             BA682
                                   220Ω 5% 0.5W
                                                              3740
   3539
              4822 116 83872
4822 116 52207
                                                                                                                                      4822 130 80888
4822 130 30621
                                                                                                                                                             BA682
                                                                                                                                                                                         7512
                                                                                                                                                                                                                           BC858B
                                                                                                                                                             1N4148
BZV55-F5V1
                                                                                                                                                                                                    5322 130 41983
                                                                                                                                                                                                                           BC858B
                                                                         4822 051 20122 1k2 5% 0.1W
                                                                                                                            6245
                                   120Ω 5% 2W
   35424
             4822 053 11121
                                                                                                                                                                                                    5322 130 41983
                                                                                                                                       4822 130 80905
                                                                                               1k5 1% 0.1W
1k2 5% 0.1W
                                                                                                                            6276
             4822 117 10833 10k 1% 0.1W
4822 117 11384 2k7 1% 0.1W
4822 051 20471 470Ω 5% 0.1W
                                                              3741
                                                                                                                                      4822 130 80446
4822 130 82192
4822 130 42489
                                                                                                                                                             BAS32L
BZV55-C8V2
                                                                                                                                                                                         7515
                                                                                                                                                                                                    4822 130 40823
                                                                                                                                                                                                                           BD139
                                                                         4822 051 20122
                                                              3742
                                                                                                                                                                                                    5322 130 41983
4822 130 40937
                                                                                                                                                                                                                           BC858B
                                                                         4822 117 11139
4822 117 10834
                                                              3742
3743
                                                                                                1k5 1% 0.1W
                                                                                                                            6370
                                                                                                                                                                                                                          BC548B
TM87CM36N
                                                                                                                                                             BYD33G
                                                                                                                            64204
                                                                                                                                                                                         7540

    4022
    117
    10534
    4/K 1% 0.1W

    4822
    117
    11454
    820Ω
    1% 0.1W

    4822
    116
    52199
    68Ω
    5% 0.5W

    4822
    051
    20101
    100Ω
    5% 0.1W

    4822
    053
    10279
    27Ω
    5% 1W

                                                                                                                                       4822 130 42488 BYD33D
4822 130 42488 BYD33D
                                                                                                                                                                                         7600
                                                                                                                                                                                                    4822 209 13653
                                                               3744
              4822 051 20182 1k8 5% 0.1W
   3546
                                                                                                                                                                                                                           (SW2.5)
                                                                                                                            6422
              4822 117 10833 10k 1% 0.1W
4822 116 52303 8k2 5% 0.5W
4822 116 52303 8k2 5% 0.5W
   3547
                                                                                                                                                                                                                           TMP87PM36N
                                                                                                                                                                                         7600
                                                                                                                                                                                                    4822 209 15648
                                                              37464
                                                                                                                                      4822 130 32896 BYD33M
5322 130 31938 BYV27-200
                                                                                                                                                                                                                           (V1.6)
                                                              3749
3749
   3602
              4822 117 10833 10k 1% 0.1W
4822 051 20472 4k7 5% 0.1W
                                                                         4822 116 52175 100Ω 5% 0.5W
                                                                                                                            6424
   3605
                                                                                                                                                                                                   5322 130 41982 BC848B
                                                                                                                            6426
                                                                                                                                       4822 130 34145 BZX79-B39
                                                                                                                                       4822 130 42488 BYD33D
                                                                                                                                                                                         7657 5322 130 41982 BC848B
                                                                         4822 117 11504 270Ω 1% 0.1W
              4822 051 20223 22k 5% 0.1W
                                                              3751
```

# Spare parts list / Stükliste / Liste des pièces

```
7658 4822 209 73852
7665 5322 130 41982
7670 5322 130 41982
                                                                                                                               2902 4822 124 41579 10uF 20% 50V
                                  PMRT2369
                                                               3336
                                                                          4822 116 52175 100Q 5% 0.5W
                                                                         4822 053 11123 12k 5% 2W
4822 051 20331 330Ω 5% 0.1W
                                                                                                                               2903▲ 4822 124 41579 10µF 20% 50V
2905▲ 4822 124 41579 10µF 20% 50V
                                  BC848B
BC848B
                                                              3343
          5322 130 41982
5322 130 41982
                                  BC848B
                                                                          4822 116 52197 56Ω 5% 0.5W
                                                                          4822 100 12227 4k7 30% lin.1W
7674▲
                                  BC848B
          4822 209 32709 ST24C04FB1
4822 209 90125 SAA5254/P/E/MIC
5322 209 10357 HEF4066BP
                                                                          4822 116 52207 1k2 5% 0.5W
                                                                         4822 116 83868 150Ω 5% 0.5W
                                                                                                                                           4822 050 11002 1k 1% 0.4W
4822 116 83884 47k 5% 0.5W
                                                               3352
                                                                          4822 116 52175 1000 5% 0.5W
                                                                                                                                3902
                                                                          4822 050 21502 1k5 1% 0.6W
4822 051 20562 5k6 5% 0.1W
                                                                                                                                           4822 116 52238 12k 5% 0.5W
4822 050 11002 1k 1% 0.4W
           5322 130 41982
                                                                                                                                3904
7713▲
          5322 130 41982 BC848B
                                                               3357
                                                                                                                                           4822 050 11002 1k 1% 0.4W
4822 116 52269 3k3 5% 0.5W
4822 116 83884 47k 5% 0.5W
           5322 130 41982
5322 130 41983
                                  BC848B
BC858B
                                                                          4822 117 11504 270Ω 1% 0.1W
4822 051 20332 3k3 5% 0.1W
                                                                                                                                3905
7731
7732▲
7740▲
                                                                          4822 051 20681 680Ω 5% 0.1W
           5322 130 41982
                                  BC848B
                                                               3362
                                                                                                                                3907
                                                               3363 4822 052 10109 10Ω 5% 0.33W
3371 4822 052 10228 2Ω2 5% 0.33W
                                                                                                                                3908
                                                                                                                                           4822 116 52283 4k7 5% 0.5W
7745 5322 130 41982 BC848B
           4822 130 41344
5322 130 41982
                                  BC337-40
BC848B
                                                               3372 4822 052 10228 202 5% 0.33W
3373 4822 050 21502 1k5 1% 0.6W
3374 4822 050 21502 1k5 1% 0.6W
                                                                                                                                 →-
7856
7857
           5322 130 41983 BC858B
                                                                                                                                6901
                                                                                                                                          4822 130 34167 BZX79-B6V2
7858 5322 130 41982 BC848B
           5322 130 41982 BC848B
5322 130 41982 BC848B
                                                                ₩-
                                                                                                                                 4822 130 34174 BZX79-B4V7
                                                               6310
                                                                                                                                            5322 209 10576 HEE4053BD
                                                                6314 4822 130 42489 BYD33G
                                                                                                                                 7901
                                                                          4822 130 34174 BZX79-B4V7
                                                                                                                                            4822 130 40937 BC548B
Smart Loader [A6<sub>A</sub>]
                                                               6334 4822 130 42489 BYD33G
                                                                          4822 130 34174 BZX79-B4V7
4822 130 42489 BYD33G
                                                                6350
Various
                                                                          4822 130 34382 BZX79-B8V2
                                                               6355
           4822 212 10424 Smart Loader
                                                                Panel
           4822 265 10457 Con. 8P F-pin
                                                                           4822 130 40937 BC548B
                                                                7300
                                                                          4822 130 41782 BF422
4822 130 40937 BC548
                                                                           4822 130 41782 BF422
                                                                7330
                                                                          4822 130 40937 BC548B
4822 130 41782 BF422
3930
3931 A
           4822 116 83883 470Ω 5% 0.5W
4822 052 10279 27Ω 5% 0.33W
                                                                7350
                                                               7360
                                                                           5322 130 41983 BC858B
           4822 052 10279 27Ω 5% 0.33W
           4822 052 10279 27Ω 5% 0.33W
                                                                Clock Panel [E1]
 Ø.
7930
           5322 209 10576 HEF4053BD
                                                                Various
                                                                           4822 212 10525 Clock panel
4822 267 41047 Con. 4P
CRT Panel [B1]
                                                                -11-
 Various
           4822 212 11573 CRT panel (14")
4822 212 11574 CRT panel (21")
4822 255 70261 CRT socket (21")
                                                               2951 4822 126 10002 100nF 20% 25V
                                                                          4822 122 33498 2.7nF 10% 63V
4822 124 81029 100µF 20% 25V
                                                               2953
            4822 255 70306 CRT socket (14*),
8P m-neck
                                                                -□-
1371 4822 252 51175 Fuse 2.5A
                                                               3951▲ 4822 051 20101 100Ω 5% 0.1W
3952▲ 4822 051 20101 100Ω 5% 0.1W
 -11-
                                                                          4822 051 10101 100Ω 2% 0.25W
4822 051 20101 100Ω 5% 0.1W
                                                               3953
3954 •
2301
           4822 124 80791 470uF 20% 16V
           4822 124 80791 470μF 20% 16
5322 122 31863 330pF 5% 50V
5322 126 10733 680pF 5% 50V
4822 122 33216 270pF 5% 50V
5322 116 80853 560pF 5% 63V
5322 122 31863 330pF 5% 50V
2304
                                                                →
2324
                                                                          4822 130 80312 TLHY4400
4822 130 10212 TLHR4401
                                                               6951
2344
           5322 122 10733 680pF 5% 50V
4822 121 41926 33nF 5% 630V
4822 124 81107 4.7μF 20% 250V
                                                               6952
2374
                                                                € 📟
                                                                           4822 209 32304 SAA1064T
                                                                7951
                                                                          4822 130 42615 BC817-40
4822 130 42615 BC817-40
           4822 100 12226 2k2 30% LIN0.1W
4822 116 83872 220Ω 5% 0.5W
4822 116 52219 330Ω 5% 0.5W
3300
 3301
                                                                7954
                                                                           4822 130 42615 BC817-40
                                                                          4822 130 42615 BC817-40
4822 130 10213 LTS4801G
           4822 116 52197 560, 5% 0.5W
4822 100 12227 4k7 30% LINO.
4822 106 52207 1k2 5% 0.5W
4822 116 52207 100Ω 5% 0.5W
4822 116 83868 150Ω 5% 0.5W
4822 053 11123 12k 5% 2W
 3304
3310
3311
                                  4k7 30% LIN0.1W
1k2 5% 0.5W
                                                               7957
                                                                           4822 130 10213 LTS4801G
                                                                          4822 130 10213 LTS4801G
4822 130 10213 LTS4801G
                                   100Ω 5% 0.5W
3312
                                   150Ω 5% 0.5W
12k 5% 2W
                                                               Radio Panel [E2]
           4822 050 21502 1k5 1% 0.6W
4822 051 20562 5k6 5% 0.1W
4822 100 12226 2k2 30% LIN0.1W
4822 116 52222 39Ω 5% 0.5W
3316
                                                                Various
                                  390Ω 5% 0.5W
1k5 5% 0.5W
           4822 116 52243
3322
                                                                         4822 212 10426 Radio Panel
4822 267 40722 Con. 6p (RP1)
4822 264 40239 Con. 3P (RM1)
4822 210 10725 Radio tuner
3323
3324
           4822 051 20331
                                   330Ω 5% 0.1W
           4822 051 20331 3301 5% 0.1W
4822 116 52197 560 5% 0.5W
4822 051 20562 5k6 5% 0.1W
4822 100 12227 4k7 30% LIN0.1W
4822 116 52207 1k2 5% 0.5W
3325
```

2901 ▲ 4822 124 41579 10µF 20% 50V

3331 3333

33344

3335

4822 116 83868 150Ω 5% 0.5W 4822 053 11123 12k 5% 2W 4822 050 21502 1k5 1% 0.6W